THE SPIDER FAMILY OECOBIIDAE IN NORTH AMERICA, MEXICO, AND THE WEST INDIES

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ABSTRACT

Two genera of the spider family Oecobiidae are recognized as occurring in the area studied: *Oecobius* Lucas, 1846, and *Platoecobius* Chamberlin and Ivie, 1935. The genera *Omanus* Thorell, 1870, *Thalamia* Hentz, 1850, *Ambika* Lehtinen, 1967, and *Tarapaca* Lehtinen, 1967, are synonyms of *Oecobius*. The female of *O. beatus*, the male of *P. floridanus*, and mature specimens of *O. isolatus* are described for the first time. *Oecobius interpellator*, *O. bracae*, *O. juangarcia*, *O. civitas*, *O. piaxtla*, *O. rivula*, *O. culiacanensis*, and *O. isolatoides* are described as new. The social behavior of *O. civitas* is briefly described.

INTRODUCTION

Members of the family Oecobiidae are listed in nearly every faunal survey of North American spiders, primarily on the basis of one or two widespread, synanthropic species. An examination of the tropical and subtropical Mexican fauna for this study has increased the number of known species in the region from six to fifteen, most of which are well established apart from human dwellings.

Except for the ubiquitous *Oecobius annulipes* Lucas, little is known of the habitats of these minute cribellate spiders. Debski (1922) published a few ecological observations on *Oecobius templi* O. P.-Cambridge, in Egypt. He found webs stretched over small projections on walls and on the bark of *Eucalyptus* trees; the major item of prey seemed to be ants. Millot (1931, 1938) studied the anatomy of the spinning apparatus of *Oecobius cellariorum* (Dugès) in great detail, but did not publish any observations on how these organs were used by the spider.

Most valuable is a recent study by Glatz (1967) on the web construction, feeding behavior, and mating of *O. annulipes*. Glatz found that in southern France, *O. annulipes* constructs two kinds of webs, one of an irregular starlike shape, and another, more tubular type. I have observed the first type constructed by specimens of *O. annulipes* in Torreya State Park, Liberty County, Florida. The main food of the French specimens was found to be two species of ants, *Plagiolepis pygmaea* and *Lasius flavus* (Glatz, 1967); in Florida I observed the spiders feeding on minute Diptera. Of great interest are Glatz's observations on the use of *Oecobius*' extraordinary anal tubercle. The stout, curved bristles with which the apical joint of the anal tubercle is ringed are used to comb the silk from the large posterior spinnerets, much as other cribellate spiders card silk from the cribellum with the calamistrum on the metatarsus of the fourth legs. Only rarely did Glatz observe *O. annulipes* using cribellar silk to swath prey.

Copulation takes place in a special mating web constructed by the male. The

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male takes a position facing the female and slightly beneath her, and inserts the right palpus into the left side of the female epigynum, and vice versa, five or more times. Each egg sac contains three to ten eggs, which receive no protection or care from the female after they are laid (Glatz, 1967).

Several partly synanthropic species, such as *O. putus, O. concinnus,* and *O. beatus,* presumably exhibit similar behavior under stones and in leaf litter or on plants.

Of considerably greater interest is the large number of new species ranging from northern Arizona to Oaxaca. While many of these species are to be found in situations similar to that described for *O. annulipes* (when living apart from man), at least one, *O. civitas,* is known to be communal. The great numbers of individuals comprising single collections of *O. culiacanensis* and *O. rivula* point to a possible communal existence for these species also.

The synanthropic or partly synanthropic species of *Oecobius* are widely distributed. *Oecobius annulipes* is known from North and South America, Europe, North Africa, Southeast Asia, and numerous oceanic islands. *Oecobius concinnus* occurs in the West Indies to the exclusion of other oecobiids, and has also been found in peninsular Florida, Venezeuela (Simon, 1892) and coastal Mexico. Records of this species in the literature (as *O. nieborowskii*) include Costa Rica (Kulczyinski, 1909, type of *O. nieborowskii,* illustrated) and the Galapagos Islands (Banks, 1931). In contrast, the "native" American species are often quite local, although more intensive collecting may show them to be widely distributed. *Oecobius isolatus* is found only in Baja California and the lower Colorado River basin; *O. culiacanensis* is limited to central Sinaloa and western Durango.

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TAXONOMY

OECOBIIDAE

Oecobiidae Blackwall, 1862, Ann. Mag. Nat. Hist., 3(9) 382. Family Oecobiidae including only the type genus *Oecobius* Lucas, 1846.

Omanoidae Thorell, 1869, Nova Acta Reg. Soc. Sci. Upsaliensis, 3: 44. Type genus *Omanus* (= *Oecobius,* objective synonym).

Oecobiinae Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 267. Subfamily under Uroteidae; Lehtinen, 1967, Ann. Zool. Fenn., 4: 303. Subfamily under Oecobiidae.

Note. Regardless of whether one considers *Uroctea* confamilial with *Oecobius* or not, the family name of the family including *Oecobius* must be Oecobiidae, a family name which antedates Urocteidae Thorell, 1869, by seven years. Until more detailed investigations are carried out on the structure and development of the cribellate *Oecobius* and the ecribellate

Uroctea, I feel it is best to maintain the two separate families.

Diagnosis. Oecobiidae are separated from all other families of spiders except Urocteidae by the large, two-jointed anal tubercle with a double fringe of curved hairs. They may be separated from the Urocteidae by the possession of a cribellum and calamistrum.

Description. Cribellate spiders of the suborder Labidognatha. Respiratory system–pair of book lungs at base of abdomen and single tracheal spiracle opening immediately in front of cribellum. Spinnerets six, set close together, median pair smallest, posterior pair largest, with apical joint long, pointed, turned dorsally. Cribellum partially divided distally. Anal tubercle large, movable, two-jointed, with fringe of long, simple, sinuate hairs around base of apical joint; apical joint tipped with long sensory hairs. Carapace suboval to reniform, usually wider than long. Chelicerae small, without boss, convergent and touching throughout their length; fang minute, fang groove and cheliceral teeth lacking. Labium wider than long, free. Endites convergent over labium, almost touching. Sternum heart-shaped, wider than long, pointed posteriorly, separating posterior coxae. Eight eyes, in two rows, AME dark, PLE dark or light, others degenerate. Three claws, paired claws with single row of teeth, median claw small, accessory claws present; female pedipalp with single toothed claw. Calamistrum somewhat suppressed, in double series, absent in males. Female copulatory organ of the entelegyne type, one or two pairs of spermathecae present, opening directly into vaginal area or by means of copulatory tubes. Male palpus complex, pre-embolic sclerites suppressed, males with fringe of specialized spatulate hairs on sternal margin.

As regards non-genitalic characters, the members of the family are remarkably uniform, though several general trends of variability may be noted. Carapace shape varies from nearly round to reniform, and seems to be correlated with body size–larger species having comparatively broader and flatter carapaces. There are considerable age and sexual differences in carapace shape as well. Juveniles and males have much rounder, higher carapaces than adult females of a given species, and the carapace of the males of some species is modified for muscle attachments of the massive palpi. This modification usually takes the form of two lunate depressions on either side of the carapace. Macrosetae associated with the eyes have an arrangement characteristic of each genus studied, and will be described below. The legs lack macrosetae in most of the species, but some rather strong setae appear on the legs of larger species, and this character also appears to be correlated with size. Additional secondary sexual characters in the males are the lack of a calamistrum and great reduction of the cribellum, and the presence on the margins of the sternum of strong, spatulate hairs of unknown function.

The most important non-genitalic character of the oecobiids is the remarkable anal tubercle. This large, two-jointed, movable structure has been described in detail by Millot (1931, 1938), and by Glatz (1967). The possibility of the anal tubercle and the elongated posterior spinnerets replacing the calamistrum and cribellum respectively has already been mentioned. The loss of the calamistrum in males and the poorly differentiated nature of this structure in females provides additional evidence for this view.

To my knowledge, the only species erroneously placed in the Oecobiidae is "*Oecobius*" *sapporensis* (Saito, 1934). Although specimens were not available for study, it is clear from the excellent color figures that the type specimen is probably a theridiid. Yaginuma (1962) was the first to point out the erroneous placement of this species, but his paper was overlooked by Kritscher (1966), who included *sapporensis* in *Oecobius*.

KEY TO OECOBIID GENERA OF THE WORLD

1a. Tibia I about six to seven times longer than wide; calamistrum running two-thirds the length of metatarsus IV ..... *Oecobius*. p. 135

1b. Tibia I about four times longer than wide; calamistrum running entire length of metatarsus IV ..... *Platoecobius*. p. 161

THE GENERIC PROBLEM IN OECOBIIDAE

As is usual in spiders, different oecobiid genera and species are separated primarily by distinctions in the genitalia and eye patterns.

The eyes in species of *Oecobius* assume two distinct patterns. In the majority of species in the genus, the eyes are arranged in two straight to slightly procurved rows, with the posterior lateral eyes the largest, followed, in order of size, by the anterior medians, anterior laterals, and posterior medians. The anterior laterals and posterior medians are opalescent and irregular in shape (Fig. 14). In *O. putus* and *Platoecobius floridanus*, the rows are more distinctly procurved and the anterior medians are largest, followed, in order of size, by the posterior laterals, the anterior laterals, and the posterior medians. The anterior laterals and posterior medians are irregular and opalescent, and the posterior laterals are round, but light in color (Figs. 17, 27). *Oecobius cellariorum* (Fig. 13) has a pattern that is variable, but usually intermediate between these two.

The palpal organs of male *Oecobius* appear simple and easily described in the contracted state, but treatment of the palpus with an expanding agent reveals considerable complexity. The most obvious unusual feature of *Oecobius* male palpi is the extensive elaboration of the embolic division. The apparent tegulum in an unexpanded palpus is in reality the much enlarged radix, or basal part of the embolus. In the more complex representatives of the genus, the embolus is further subdivided, forming three distinct sclerites. Homologies in such an unusual palpal type cannot clearly be established, but it is useful to apply the same terms to structures that are analogous in other spider groups. The terms used here are based on those originated by Comstock (1940), and further described by Shear (1967). The order in which the following descriptions are arranged is not intended to suggest a possible phylogeny, rather, simpler palpi are described first.

Oecobius putus shows most of the features common to the palpi of a majority of the species of *Oecobius*. In a lateral view of an extended palpus (Fig. 1), the tegulum (*t*) can be seen to articulate with the enlarged basal part of the embolus, which may be termed the radix (*r*), by means of a strong sclerotized rod fitting into an internal socket (possibly this rod could be called a median apophysis). The conductor (*c*) is large and complex. In a mesal view (Fig. 2), the incomplete, spiral nature of the radix is revealed, and the articulation between the basal part and the intromittent portion of the embolus (*e*) is clear.

Oecobius cellariorum, the type species of the genus, differs from *O. putus* only in that the intromittent portion of the embolus (*e*) bears a large curved hook near its articulation with the radix (*r*). The actual intromittent portion of the embolus cannot be seen in either of the figures (Figs. 3, 4), but is a short, slightly curved spine.

The palpus of *O. concinnus* (Figs. 5, 6) is more complex than the preceding two examples. The large, curved hook of the embolus is present as a separate sclerite, which can be designated the stipes (*s*). The distal portion of the embolus (*e*) articulates with the stipes and not with the radix (*r*). The radix bears a thin sclerotized rod on its lateral surface. The conductor (*c*) is reduced in size.

Oecobius rivula (Figs. 7, 8) is representative of a group of Mexican species whose palpi differ in a few particulars from *O. concinnus*. The process of the radix (*r*) is present in this group as a thick,

heavy apophysis (radical apophysis, *a*), and the radix is reduced in size. The stipes (*s*) is enlarged mesally. The distal portion of the embolus is a small, curved spine (*e*). Of some interest is the perforation in the stipes of these species, opposite the median apophysis of the tegulum (*t*).

In *O. annulipes* (Figs. 9, 10), a similarity to the *O. putus-O. cellariorum* plan is obvious. The embolus (*e*) and conductor (*c*) are subequal in size, and the radix (*r*) is a spiral making slightly more than one turn.

In *Platoecobius floridanus*, illustrated in Figures 11 and 12, the palpus is simpler than in *O. annulipes*. The tegulum (?) may be represented only by a ringlike patch of slightly heavier sclerotization on the basal hematodocha (*bh*). The spiral radix (*r*) is much enlarged and makes one and one-half full turns. The conductor (*c*) is small and partly membranous. The stipes (*s*) is also small, but bears a distal hook opposite its articulation with the intromittent part of the embolus (*e*). The track of the sperm tube inside the palpus is much convoluted, and is valuable in ascertaining the relationships of the sclerites.

The female genitalia may be discussed from two aspects, external and internal. Externally, features common to most species of *Oecobius* are a scape of extremely variable size and shape, and a large, common fossa from which the openings of the copulatory ducts lead to the spermathecae. In *O. annulipes* (Fig. 29), the scape is long and narrow, while in *O. civitas* (Fig. 43), *O. isolatus* (Fig. 35), *O. isolatoides* (Fig. 37), and related Mexican species, the scape is broad. In each of these, however, the fertilization tubes are plainly visible, and they open at the distal end of the scape, or into notches that run to the distal end of the scape (*O. culiacanensis*, Fig. 45). In *O. cellariorum* (Fig. 28), *O. beatus* (Fig. 33), and *O. bracae* (Fig. 41), the scape is very broad and short, but otherwise comparable to the above species. A slightly different pattern occurs in *O. concinnus* (Fig. 31), *O. juangarcia* (Fig. 40), and *O. rivula* (Fig. 39). The scape is folded anteriorly, then somewhat posteriorly, and the fertilization tubes open into or near a common fossa that may be set back from the distal margin of the scape. *Oecobius interpellator* (Fig. 36) is apparently not very closely related to the other species studied here; both a scape and common copulatory fossa are absent. *Platoecobius floridanus* (Fig. 46) departs radically from this basic external pattern by being practically devoid of any external epigynal modifications, except for an anterior sclerotized notch of unknown function.

Internally, the basic pattern in *Oecobius* shows little variation. The copulatory ducts vary in length; in *O. annulipes* (Fig. 30) and *O. civitas* (Fig. 44) they are moderately long, but in *O. bracae* (Fig. 42) and *O. concinnus* (Fig. 32) they are practically nonexistent. The spermathecae are heavy-walled, and vary in shape from rather rounded (*O. civitas*, Fig. 44) to more elongate (*O. concinnus*, Fig. 32). In species with long copulatory ducts, the spermathecae are always lateral to the copulatory openings, except in *O. annulipes* (Fig. 30), where they are anterior and mesal. The fertilization tubes are long in all species, and traverse the scape for at least the distal third of their length.

Once again, *Platoecobius floridanus* (Fig. 47) differs considerably from the other oecobiids studied. The heavy-walled primary spermathecae are sessile and posterior to the copulatory openings. Connecting ducts run laterad and anterior to open into large, weakly sclerotized secondary spermathecae, from which they continue mesoposteriad as fertilization tubes to open, without external modification, on the ventral surface of the abdomen anterior to the copulatory openings.

Recently, Lehtinen (1967) has divided the family Oecobiidae into six genera, of which three are new. Two of the three

genera are monotypic. *Thalamia* is resurrected from synonymy, and *Platoecobius* Chamberlin and Ivie 1935, is retained. An examination of the chart (Lehtinen, 1967: 304) in which the characters of the proposed genera are given reveals that the new genera are erected primarily on the grounds of differences in the eyes and genitalia.

Examples of characters in the chart are such items as abdominal color pattern, which I believe can vary with feeding and the reproductive state of the spider, the presence of strong leg macrosetae and trichobothrial distribution, [which Lehtinen (1967: 305) indicates "... are easily explained by the general correlation of these characters to the average size of the spiders."], and a series of other characters that are uniform throughout the family. In addition, errors of observation and interpretation have crept in; the "fovea" (thoracic groove) of all oecobiids examined by me was very shallow and transverse, yet Lehtinen (1967) lists five different forms, ranging from "totally absent" to "long and rather deep." The comments on genitalia are filled with terms not explained nor illustrated. The genus *Oecobius sensu* Lehtinen is said to be Mediterranean in distribution, but includes *O. formosensis* Kishida, of the Orient, and *O. cellariorum*, synanthropically widespread in Europe and North America; *Platoecobius* is said to be distributed through the "N. Neotropical– S. Nearctic" regions, but the only species, *P. floridanus* (Banks), is known only from Florida, Georgia, and South Carolina in the United States. In addition, three of the genera are based on a knowledge of only the female sex of the included species.

The discussion of eye characters and genitalia above delimits the ranges of variability in the fifteen species and nearly 1500 specimens studied by me, including both sexes in all cases. Certainly, the eye arrangement of *Oecobius putus*, for example, selected by Lehtinen as the type species of *Ambika*, is distinct from that of most other members of *Oecobius sensu latu;* but in many of the males of *Oecobius cellariorum*, type species of *Oecobius*, a similar pattern with enlarged anterior median eyes, is found. Clearly, *O. putus* is not in any other way except eye arrangement related to *Platoecobius floridanus*, but its genitalia are quite within the range of variation of *Oecobius*. Thus it would seem that eye pattern is subject to convergence in otherwise unrelated species. Perhaps similar habits, as yet undescribed, provide the selection pressures producing this convergence. The genitalia of *O. nieborowskii* (= *O. concinnus* Simon), type species of Lehtinen's genus *Tarapaca*, also fall within the variation found in *Oecobius*.

Most modern taxonomists feel that the genus represents a group of closely related species that occupy a similar ecological niche and may be separated from other such groups by a distinct morphological discontinuity, although this latter criterion is often soft-pedalled (Mayr, Linsley, and Usinger, 1953: 57–59; Mayr, 1963: 588–592). It has also been emphasized that the criteria by which genera are delimited are essentially subjective, and that little is gained by splitting long-recognized, seemingly natural higher taxa (Mayr, Linsley, and Usinger, 1953: 59). Taking this into account, along with the evidence of the similar genital pattern of *Oecobius* species presented above, it is my opinion that three of Lehtinen's genera, *Ambika*, *Tarapaca*, and *Thalamia*, must be considered synonyms of *Oecobius*. I have refrained from commenting on the genus *Maitreja* Lehtinen 1967, type species *Maitreja marathaus* (Tikader), from India, since I have been unable to examine any specimens of this species, but the published figures (Tikader, 1962) do not seem to warrant the retention of *Maitreja* as a generic name. Indeed, *M. marathaus* may be a synonym of *O. cellariorum*.

However, after studying in detail the general structure and genitalia of *Platoecobius floridanus* including, for the first time, male specimens, I concur with Chamberlin and Ivie (1935) and Lehtinen (1967) that it deserves generic recognition. In addition to its unique genitalia, it is the only oecobiid known not to weave a web for capture of prey (Chamberlin and Ivie, 1935), thus occupying a distinct ecological niche. Therefore, two genera, *Oecobius* Lucas 1846 and *Platoecobius* Chamberlin and Ivie 1935, are recognized from the area of this study.

Genus *Oecobius* Lucas 1846

Oecobius Lucas, 1846, Expl. Sci. Algérie, Zool. I, Arach., p. 100, type species designated by Thorell, 1869, (On European Spiders, p. 112), *Oecobius domesticus* Lucas (= *O. cellariorum* (Dugés); Simon, 1875, Arach. France, 2: 6; 1892, Ann. Entomol. Soc. France, p. 435; Comstock, "1912" (1913), The Spider Book, p. 288; Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 267; Kaston, 1948, Bull. Connecticut Geol. Nat. Hist. Surv., no. 70, p. 499; Kaston, 1953, How to Know the Spiders, p. 36; Lehtinen, 1967, Ann. Zool. Fenn., 4: 253, p. 304.

Omanus Thorell, 1870, Nova Acta Reg. Soc. Sci. Upsaliensis, ser. 3, p. 114, type species by original designation *Oecobius navus* Blackwall (= *O. annulipes* Lucas); Keyserling, 1891, Die Spinnen Amerikas, Vol. 3 (Brasilianische Spinnen), p. 160.

Thalamia Hentz, 1850, J. Boston Soc. Nat. Hist., 6: 35, type species by monotypy *Thalamia parietalis* Hentz (= *O. annulipes* Lucas); Banks, 1890, Proc. Entomol. Soc. Washington, 2: 125; Lehtinen, 1967, Ann. Zool. Fenn., 4: 269, 304.

Ambika Lehtinen, 1967, Ann. Zool. Fenn., 4: 212, 304, type species by monotypy *Oecobius putus* O. P.-Cambridge. NEW SYNONYMY.

Tarapaca Lehtinen, 1967, Ann. Zool. Fenn., 4: 267, 304, type species by monotypy *Oecobius nicborowskii* Kulczynski (= *O. concinnus* Simon). NEW SYNONYMY.

Diagnosis. *Oecobius* is separated from *Platoecobius*, the only other genus in the family, by having longer, thinner legs, the calamistrum of the females extending two-thirds the length of metatarsus IV, and the more complex genitalia.

Description. Small oecobiid spiders (1.5–4.5 mm total length) with characters of the family. Carapace with sides rounded, clypeus prolonged into subtriangular projection. Carapace flat to moderately high, head region moderately elevated. Eyes on low tubercle, eye area wider than long. Anterior median eyes (AME) and posterior lateral eyes (PLE) round, dark; anterior lateral eyes (ALE) and posterior median eyes (PME) irregular, light. Macrosetae of eye area as follows: three between AME, one behind each PME, two nearly contiguous on midline behind eye area; position of macrosetae varying somewhat with eye arrangement of species. Thoracic groove transverse, absent to indistinct. Carapace depressed and indented above pedicel. Abdomen flattened, elongate to suboval, somewhat pointed behind. Leg formula usually 4213 or 421=3. Legs long, thin, spines weak to lacking, without definite arrangement. Tarsi without trichobothria, metatarsal trichobothria one or two, without definite arrangement. Hind coxae separated by sternum. Calamistrum lacking in mature males, extending in immature specimens and females along proximal two-thirds of metatarsus IV. Palpi of mature males with tegulum and subtegulum greatly suppressed, visible only in treated palpi, conductor large, well sclerotized, embolus consisting of two or three sclerites, intromittent portion a short, curved spine. Female with more or less elaborate epigynal modification, one pair of heavily sclerotized spermathecae.

Fourteen species are known from the region of this study; most of them are very similar, and best separated by reference to the figures. Only the most significant references are given under each species; for more detailed references, see Roewer (1954), and Bonnet (1958).

Key to Species of *Oecobius*:

1a. AME larger than or equal to PLE (Figs. 13, 17) ..... 2.
1b. AME five-sixths the diameter of PLE, or smaller (Fig. 16) ..... 3.

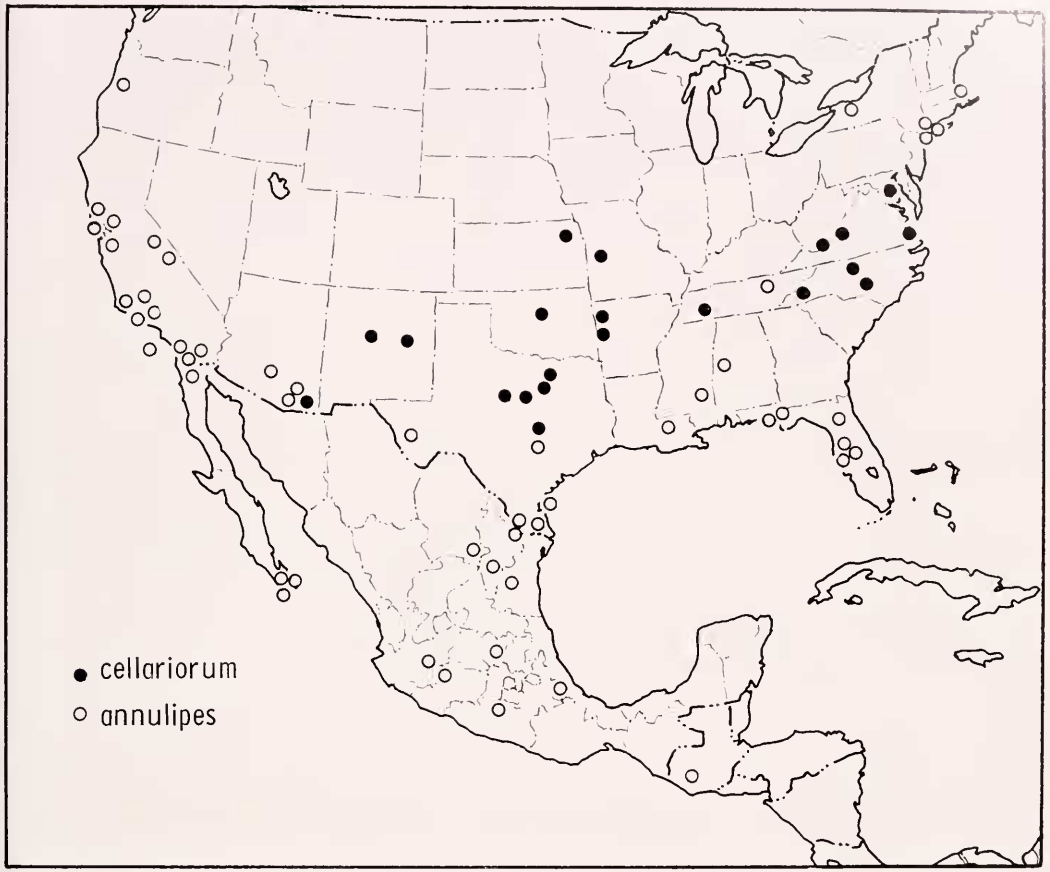
2a. Eye area nearly twice as wide as long, or wider (Fig. 17); PLE pale but not opalescent ..... *putus*. p. 144
2b. Eye area nearly square (Fig. 13); PLE dark ..... *cellariorum*. p. 136
3a. Carapace yellowish white, unmarked, or with dark markings on a yellowish white ground (Figs. 13, 16) ..... 4.
3b. Carapace medium brown to black, lighter individuals with a dark pattern (Figs. 18, 22) ..... 9.
4a. Carapace unmarked except for marginal dark line and often a dusky central band (Fig. 13) ..... *cellariorum*. p. 136
4b. Carapace with additional markings, usually taking the form of three dark spots on each side (Figs. 14, 15), or of submarginal bands (Figs. 20, 24) ..... 5.
5a. Submarginal spots well separated from each other and from marginal line (Figs. 14, 15) ..... 6.
5b. Submarginal spots fused to each other (Fig. 24), or to marginal line (Fig. 20), or both ..... 8.
6a. Epigynum without a scape (Fig. 36); male palpus in lateral view with a large, serrate, distally hooked conductor (Fig. 58); Cambridge, Mass., and New Caledonia (?) ..... *interpellator*. p. 146
6b. Not as in 6a ..... 7.
7a. Submarginal spots *usually* commalike, nearly touching (Fig. 15); epigynal scape broader than long (Fig. 31); male palpus with a large stipal process in mesal view (Fig. 52); West Indies, Florida, coastal Mexico, Central America, Venezuela, Columbia ..... *concinnus*. p. 141
7b. Submarginal spots oval, well separated (Fig. 14); epigynal scape three to four times longer than broad (Fig. 29); stipal process of male palpus small (Fig. 51); pantropical, north to Massachusetts and Oregon on the North American coasts ..... *annulipes*. p. 138
8a. Submarginal spots usually connected to form a submarginal band which is then connected to the marginal line (Fig. 24); epigynal scape squared-off posteriorly and notched (Fig. 41); male palpus as in Figure 70; Oaxaca ..... *bracae*. p. 156
8b. Submarginal spots usually separated from each other, but connected to marginal line (Fig. 20); epigynum with a very short, broad scape bearing two posterior digital processes (Fig. 33); male palpus as in Figure 54; Guerrero, Tamaulipas ..... *beatus*. p. 143
9a. Carapace of adults evenly dark brown to black (Fig. 23), immatures more lightly colored, often marked darker; epigynal scape with a central depression (Fig. 40); male palpus lacking radical apophysis (Fig. 67; compare with Fig. 69); Oaxaca ..... *juangarcia*. p. 154
9b. Carapace of adults dark to light brown, but generally with a much darker pattern or shading (Figs. 18, 19, 21); epigynal scape without a central depression; male palpus with radical apophysis (except for *O. civitas*, Figs. 72, 73) ..... 10.
10a. Epigynal scape as wide or wider than long, *not distinctly narrowed distally* (Fig. 43); male palpus without a radical apophysis (Figs. 72, 73); west-central Mexico ..... *civitas*. p. 157
10b. Epigynal scape longer than wide, or *if not, then distinctly narrowed distally;* male palpus with radical apophysis ..... 11.
11a. Epigynal scape as wide or wider than long, distinctly narrowed distally (Fig. 38); male palpus as in Figures 64, 65; Sinaloa ..... *piaxtla*. p. 150
11b. Epigynal scape longer than wide, narrowed distally or not (Figs. 35, 37); male palpus not as in Figures 64, 65; ..... 12.
12a. Fertilization tubes opening into distal notches on epigynal scape (Fig. 45), scape not narrowed distally; male palpus as in Figures 74, 75; Sinaloa ..... *culiacanensis*. p. 159
12b. Fertilization tubes not opening into distal notches; male palpus not as in Figures 74, 75 ..... 13.
13a. Scape with a small perforation near tip, narrowed distally (Fig. 39); male palpus massive, as in Figures 68, 69; Sinaloa ..... *rivula*. p. 152
13b. Scape without such a perforation; male palpus otherwise ..... 14.
14a. Scape narrowed distally (Fig. 37); male palpus as in Figures 62, 63; Arizona, Sonora, N. Sinaloa ..... *isolatoides*. p. 150
14b. Scape not narrowed distally (Fig. 35); male palpus as in Figures 60, 61; lower Colorado River valley, Baja California ..... *isolatus*. p. 148

Oecobius cellariorum (Dugès)

Figures 3, 4, 13, 28, 48, 49; Map 1

Clotho cellariorum Dugès, 1836, Ann. Sci. Nat., 2: 161. Types presumed lost. Type locality not designated.

Oecobius cellariorum, Simon, 1875, Arach. France, 2: 7. Roewer, 1954, Katalog der Araneae, 2: 1288. Bonnet, 1958, Bibliographia Araneorum, 2: 3132. Kritscher, 1966, Ann. Naturhist. Mus. Wien., 69: 287, pl. 1, fig. 4, 5, 6, ♂ ♀.



Map 1. North America, showing distribution of O. *cellariarum* and O. *annulipes*.

Oecobius domesticus Lucas, 1846, Expl. Sci. Algérie, Zool. 1, Arach., 100–101, pl. 2, figs. 1a–1g, ♀. Types presumably in the Paris museum, not examined; type locality, Algiers, Algeria.

Oecobius texanus Bryant, 1936, Psyche, 43: 87, figs. 8a–8e, ♂ ♀. Male holotype, female paratypes from Dallas, Texas, in Museum of Comparative Zoology, examined. Gertsch and Mulaik, 1940, Bull. Amer. Mus. Nat. Hist., 97: 335. Muma, 1944, Amer. Mus. Novitates, 1257: 1. Roewer, 1954, Katalog der Araneae, 2: 1290. Bonnet, 1958, Bibliographia Araneorum, 2: 3135. NEW SYNONYMY.

Diagnosis. This species is distinguished from all other Nearctic species except *O. putus* by the virtually unmarked carapace, and from *O. putus* by the eye relations (*cf.* Figs. 13, 17) and the smaller size of *O. cellariorum*.

Description. Female from Las Cruces, New Mexico: carapace (Fig. 13) suboval, wider than long (L/W = 1/1.3), almost glabrous, pale hairs on margins and lateral to eye area. Clypeus slightly prolonged, steeply sloping, about ten degrees from vertical. Eye area highest point of carapace, sloping steeply to clypeus and laterally, prolonged behind almost to thoracic groove, then declining sharply to posterior margin of carapace. Eye area wider than long (L/W = 1/1.5), eyes in two rows, posterior row recurved, anterior row nearly straight. PLE the largest, dark, separated

by about two and one-half times their diameter; PME irregular, opalescent, separated by scarcely one-fourth diameter of PLE, and from each other by their diameter, nearly contiguous with PLE; ALE irregular, opalescent, nearly contiguous with AME. Labium subtriangular, wider at the base than long. Sternum longer than wide (L/W = 1/.83), anterior margin slightly excavated to receive labium, bluntly pointed behind, separating posterior coxae by slightly more than their width, clothed sparsely with long hairs, more dense around margins. Abdomen suboval, pointed behind, widest slightly anterior to middle of length, densely set with colorless hairs. Epigynum (Fig. 28) with two strongly chitinized lateral lobes overhanging a transversely wrinkled area.

Carapace pale yellowish white, except for dark marginal line, dusky area surrounding eyes; eyes ringed with black. Abdomen pale gray with chalky white blotches, except in cardiac area, three pairs of distinct dark spots marking abdominal apodemes. Venter pale gray blotched chalky white, spinnerets slightly darker. Endites, labium, sternum, and coxae of legs uniform pale yellowish white. Legs slightly darker distally, femoral bases off-white, tarsi somewhat dusky; vaguely indicated annuli median on femora and tibiae of anterior legs and distally on metatarsi. Total length, 2.90 mm. Carapace .90 mm long, 1.02 mm wide. Tibiae I–IV .83, .87, .84, .90 mm long, respectively. Metatarsi I–IV .78, .87, .84, .98 mm long, respectively.

Male from Las Cruces, New Mexico, with structure essentially as in female, except as follows: carapace proportionally wider than in the female; eye area higher; and clypeus more steeply sloping, nearly vertical. PLE reduced in size, subequal to AME. Legs longer and thinner than in female. Sternum margined with special hairs which are spatulate and darkened distally. Coloration as in female. Palpus as in Figures 48, 49. Total length, 2.18 mm. Carapace .67 mm long, .95 mm wide. Tibiae I–IV .82, .87, .92, .96 mm long, respectively. Metatarsi I–IV .82, .90, .92, 1.00 mm long, respectively.

Ecological Notes. In the southwest, this species is fairly common both in and out of buildings; in the more northerly parts of its range it is restricted to indoor habitats. Males in Texas and New Mexico mature in June, and disappear in August. Immature males with swollen palpi appear in October and December. Females mature outdoors in July, but persist indoors the year round. The mode of life is essentially that described by Glatz (1967) for *O. annulipes.*

Distribution. (Map 1) From extreme western New Mexico across Texas and Oklahoma to Arkansas, Missouri, and Kansas; in Tennessee, Maryland, and North Carolina in the east. Absent from most of the range of *O. annulipes.* Common in Europe, but probably more closely related to North American forms, and may have originated here.

Oecobius annulipes Lucas

Figures 9, 10, 14, 29, 30, 50, 51; Map 1

Oecobius annulipes Lucas, 1849, Expl. Sci. Algérie, Zool. I, Arach., 102, figs. 2a–2g, ♀; types probably in Paris museum, not examined; type locality, Algiers. Simon, 1875, Arach. France, 2: 9. Kritscher, 1966, Ann. Naturhist. Mus. Wien., 68: 285, pl. 1, figs. 1–3, ♂♀.

Thalamia parietalis Hentz, 1850, J. Boston Soc. Nat. Hist., 6: 35, pl. 15, fig. 16, ♀; types destroyed; type locality, "S. Alabama."

Oecobius parietalis, Simon, 1892, Histoire Naturelles des Araignées, 1: 247, figs. 192, 197, ♀. Emerton, 1909, Trans. Connecticut Acad. Arts Sci., 14: 212, pl. 7, figs. 1a–1e, ♂♀. Comstock,

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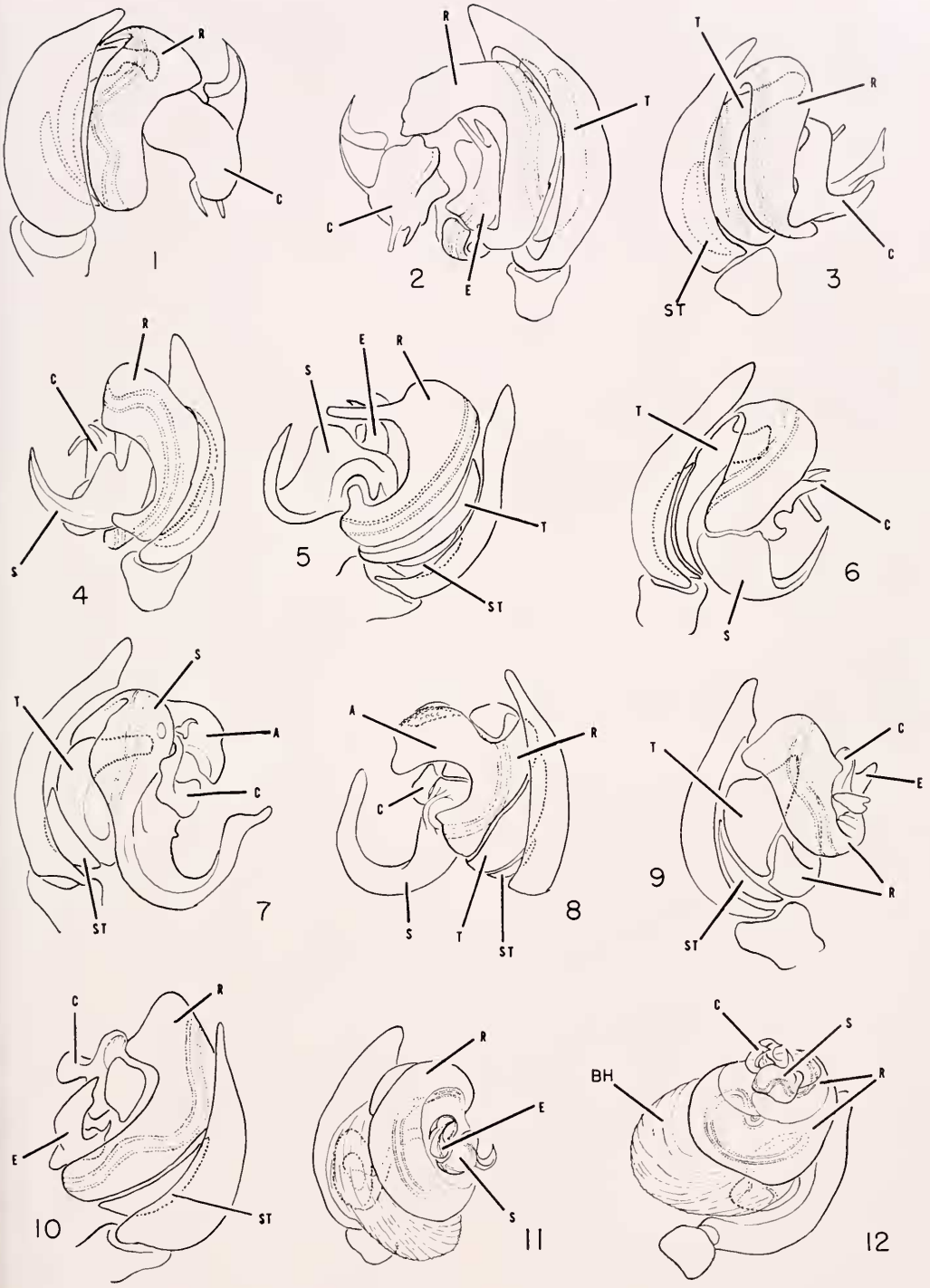
Expanded right palpi of males. Figs. 1–12. 1. *Oecobius putus,* lateral view. 2. *O. putus,* mesal view. 3. *O. cellariorum,* lateral view. 4. *O. cellariorum,* mesal view. 5. *O. concinnus,* lateral view. 6. *O. concinnus,* mesal view. 7. *O. rivula,* lateral view. 8. *O. rivula,* mesal view. 9. *O. annulipes,* lateral view. 10. *O. annulipes,* mesal view. 11. *Platoecobius floridanus,* lateral view. 12. *P. floridanus,* mesal view.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"1912" (1913), The Spider Book, p. 288, fig. 275, ♀. Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 267, figs. 1, 3–17, ♀ ♂. Kaston, 1948, Connecticut State Geol. Nat. Hist. Bull., 70: 599, pl. 101, figs. 1878–1881, ♀ ♂; Kaston, 1953, How to Know the Spiders, p. 36, figs. 69–70, ♀. Roewer, 1954, Katalog der Araneae, 2: 1288. Bonnet, 1958, Bibliographia Araneorum, 2: 3131–3132.

Diagnosis. The pattern of the carapace (Fig. 14) is characteristic, but similar to *O. interpellator* and *O. concinnus*. *Oecobius annulipes* is intermediate between these two in size. The palpus of *O. concinnus* (Fig. 52) has two large, projecting apophyses, and the epigynal scape (Fig. 31) is wider than long. An epigynal scape is lacking in *O. interpellator*, and the palpus is distinctive (Fig. 58). The palpus of *O. annulipes* (Fig. 50) is compact, without large projections, and the epigynal scape (Fig. 29) is long and pointed.

Description. Female from Sunland, California: carapace (Fig. 14) suboval, sparsely clothed with small hairs, wider than long (L/W = 1/1.3). Clypeus prolonged beyond eyes by one-tenth length of carapace and evenly rounded. Eye area wider than long (L/W = 1/1.3). PLE much the largest, separated by little less than two diameters. PME irregular, opalescent, nearly contiguous with PLE, separated by their greatest width. AME dark, about two-thirds diameter of PLE, separated from each other by a radius and from the PLE by a radius. ALE light, irregular, nearly contiguous with AME. Anterior eye row and posterior eye row of nearly the same width, both rows procurved so that anterior margin of PME is on line drawn through centers of PLE, and posterior edge of ALE is on line drawn through centers of AME. Epigynum as in Figures 29, 30, with prominent scape bearing two small openings at its distal end and traversed by pair of tubes, openings of epigynal ducts concealed at base of scape, running short distance internally to two seminal receptacles. Legs clothed with fine hairs, some plumose, weak spines arranged irregularly, strongest situated dorsally at distal ends of femora and patellae, and ventrally at distal ends of tibiae. Number of bristles found in calamistrum varies from specimen to specimen, lowest number found being 19, greatest 27, but in all cases inner row has greater number of bristles. Remainder of structure in close agreement with *O. cellariorum*. Carapace yellowish white, marginal band gray. Eyes surrounded by black rings blending off into gray area extending backwards and tapering to thoracic groove, then continuing as band as wide as groove to posterior margin of carapace. Anteriorly, gray area constricted between AME, widening abruptly, extending down clypeus, tip of clypeal projection light. Three dusky spots on carapace about midway between the marginal band and median dark area, opposite coxae of legs I, II, and III. Legs paler yellow, annulated as follows. Femur with two annuli, incomplete dorsally, one about middle of its length, other at distal end; patella dark ventrally; tibia with two annuli, incomplete dorsally; metatarsus with two annuli paler dorsally but complete; tarsi without annuli but slightly darker distally. Sternum, labium, endites, and coxae of legs uniform pale yellow; palpus dusky towards distal end. Abdomen grayish, mottled white, with darker, unmottled cardiac mark. Anterior margin of abdomen with dark band extending laterad about one-half length of abdomen, then replaced by three pairs of slanting dark marks that extend mesally almost to cardiac mark. Spinnerets and anal tubercle whitish, gray dorsally, surrounded by dusky area. Venter pale. Total length 2.91 mm. Carapace .70 mm long, .98 mm wide. Tibiae I–IV .83, .86, .82, .83 mm long, respectively. Metatarsi I–IV .74, .82, .83, .90 mm long, respectively.

Male from Sunland, California, with structure essentially as in female, except as follows. Carapace wider in proportion to its length (L/W = 1/1.4), clypeal projection slightly more acute. Eye area more

compressed, but only slightly wider in proportion to its length. Carapace more nearly glabrous than in female, but hairs of legs and sternum much longer. Abdomen much smaller in proportion to carapace, with longer hairs. Fringe on anal tubercle less well developed. Cribellum small. Calamistrum absent from fourth metatarsus. Color pattern less well developed than in female. Marginal band of carapace broken between coxae of legs, paired spots of carapace only faintly indicated, median dusky area limited to eye region and thoracic groove. Markings on abdomen fainter, dark coloration on dorsal side of apical segment of posterior spinnerets more pronounced. Palpus as in Figures 50, 51. Total length, 2.58 mm. Carapace .70 mm long, 1.05 mm wide. Tibiae I–IV .74, .81, .78, .81 mm long, respectively. Metatarsi I–IV .75, .78, .81, .85 mm long, respectively.

Ecological Notes. Discussed in detail by Glatz (1967) and in section INTRODUCTION above. Mature individuals are found throughout the year in houses. It has become established out-of-doors only in the southwestern United States and south into Mexico where it matures in early summer.

Distribution. (Map 1) Pantropical. I have examined specimens from Europe, India, South America, Africa, Hong Kong, South Viet Nam, and various oceanic islands, and found little variation. There is little evidence as to the point of origin of this highly synanthropic species.

Oecobius concinnus Simon

Figures 4, 5, 15, 31, 32, 52, 53; Map 2

Oecobius concinnus Simon, 1892, Ann. Entomol. Soc. France, p. 435, pl. 9, fig. 2, ♂; female holotype and male paratype from Puerto Cabello, Venezuela, in the Paris Museum, examined and photographed by J.-C. Ledoux. Roewer, 1954, Katalog der Araneae, 2: 1289. Bonnet, 1958, Bibliographia Araneorum, 2: 3133.

Oecobius nieborowskii Kulczynski, 1909, Bull. Internat. Acad. Sci. Cracovie, ann. 1909, sem. II, p. 454, pl. 22, fig. 30, ♀. Type locality Turrialba, C. R.; types not examined, disposition unknown. Roewer, 1954, Katalog der Araneae, 2: 1290. Bonnet, 1958, Bibliographia Araneorum, 2: 3134. NEW SYNONYMY.

Thalamia nieborowskii, Banks, 1931, Nyt Mag. Naturvidensk (Oslo), 118, p. 272, pl. 2, figs. 7, 8, ♂.

Oecobius benneri Petrunkevitch, 1929, Trans. Connecticut Acad. Arts Sci., 30: 75, figs. 64–66, ♀; female holotype from Rio Piedras, P. R., in American Musuem of Natural History, examined. Roewer, 1954, Katalog der Araneae, 2: 1289. Bonnet, 1958, Bibliographia Araneorum, 2: 3132. NEW SYNONYMY.

Oecobius vokesi Gertsch and Davis, 1942, Amer. Mus. Novitates, 1158: 19, Fig. 40, ♀; female holotype from 30 miles south of Jésus Carranza, Veracruz, in American Museum of Natural History, not examined, presumed lost. Roewer, 1954, Katalog der Araneae, 2: 1290. NEW SYNONYMY.

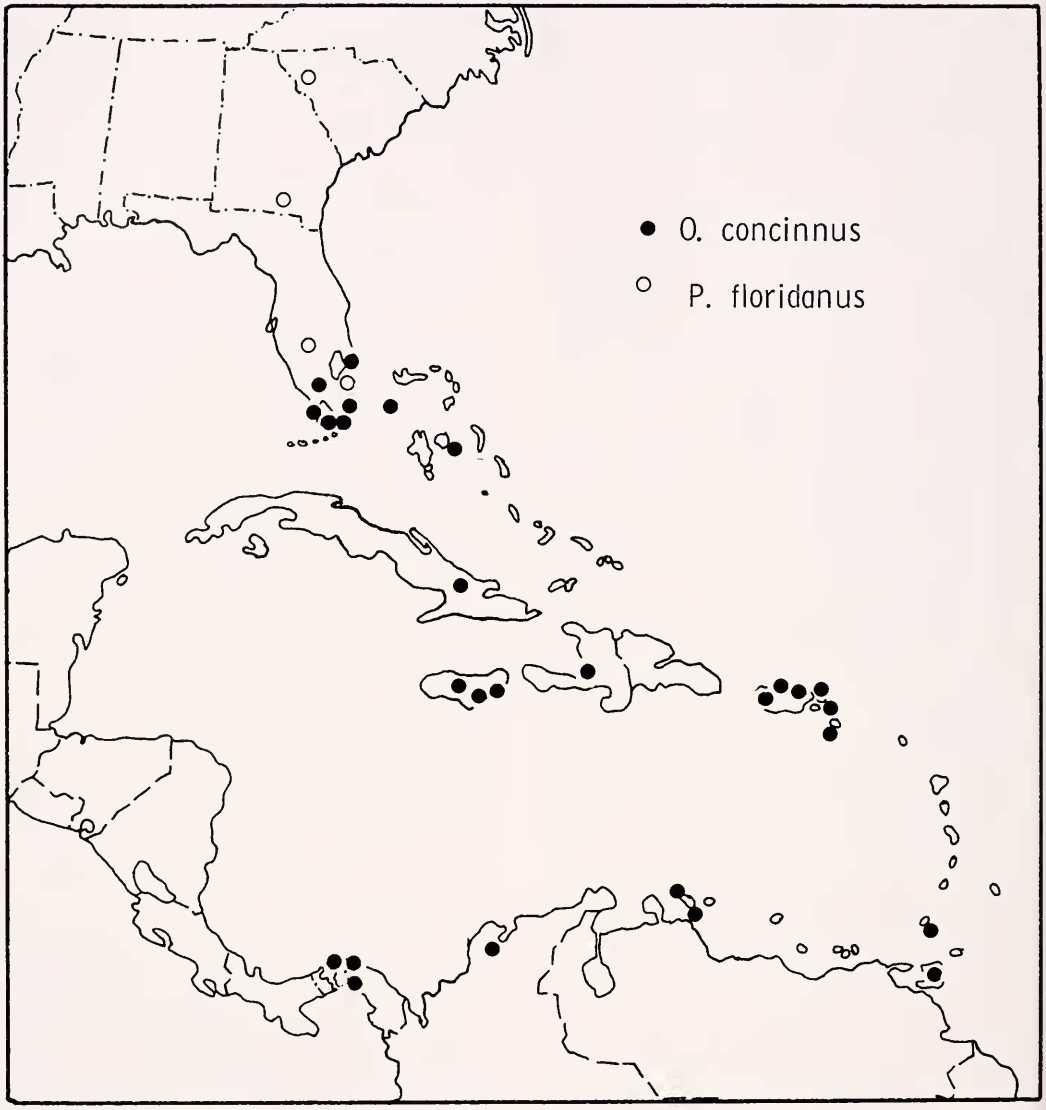
Oecobius audanti Bryant, 1948a, Bull. Mus. Comp. Zool., 100: 334, pl. 1, fig. 4, ♀, pl. 2, figs. 10, 12, ♂; male holotype, female paratype from Port-au-Prince, Haiti, in Museum of Comparative Zoology, examined. NEW SYNONYMY.

Tarapaca nieborowskii, Lehtinen, 1967, Ann. Zool. Fenn., 4: 433, fig. 30, ♀.

Oecobius beatus, Bryant, 1948, Psyche, 55: 57, (in part) pl. 10, figs. 1, 2, ♂; specimen designated "allotype male" in Museum of Comparative Zoology, examined. Not *O. beatus* Gertsch and Davis, 1937, Amer. Mus. Novitates, 961, p. 2, figs. 1, 2, ♀; female holotype of *O. beatus* in American Museum of Natural History, examined. See *Oecobius beatus.*

Note. This species has accumulated the most impressive synonymy of any Nearctic-Neotropical species. The specimens designated as "allotypes" by Bryant (1948) belong to *O. concinnus,* while females found supposedly at the same place and time are typical *O. beatus.* A vial from the American Museum of Natural History from Tamaulipas contained *O. beatus* males and females. The synonymy of *O. vokesi* was established by the examination of specimens in the American Museum, verified by Dr. Gertsch. The placement of Banks' specimens is based on the close agreement between his figures and male specimens of *O. concinnus.*

Diagnosis. This species overlaps with others only in eastern Mexico and in Peninsular Florida, where it may be dis-



Map 2. Caribbean region, showing distribution of O. *concinnus* and P. *floridanus*.

tinguished from *O. annulipes* and *O. beatus* by reference to the figures, and the discussions under those species. No other species is known to occur in the West Indies, as Petrunkevitch (1929) observed in describing *O. benneri*.

Description. Female from St. Augustine, Trinidad: carapace (Fig. 15) suboval, wider than long (L/W = 1/1.2), clypeal projection evenly rounded; carapace highest in eye area and sloping evenly in all directions, more sharply posteriorly, glabrous, with a few plumose hairs. Eye area wider than long (L/W = 1/1.9), anterior eye row slightly procurved. PLE the largest, separated by one and one-third their diameter, PME irregular, opalescent, twice as long as wide, separated by one and one-

third their width, contiguous with inner margins of PLE. AME slightly more than one-half diameter of PLE, separated from each other by one and one-third diameters and from PLE by one-half diameter. ALE irregular, opalescent, contiguous with prolateral margins of AME. Epigynum as in Figures 31, 32. Remainder of structure typical. Carapace off-white, eyes ringed with black and surrounded by extensive dusky area. Clypeus entirely dusky, slightly lighter in center. Marginal line dark gray, three comma-shaped dusky marks contiguous end-to-end longitudinally between marginal line and central dusky area, faintly indicated gray spots extending towards these markings from marginal line. Abdomen grayish white, with a brown cardiac mark and brownish gray lines on sides. Venter mostly chalk-white, spinnerets light brown. Legs yellow-white with lateral maculae on coxae and trochanters of first two pairs, at midlength and distally on all leg segments except patellae and tarsi, patellae entirely dark laterally, tarsi somewhat darker distally. Maculae forming complete annuli on metatarsi. Total length, 1.37 mm. Carapace .68 mm long, .84 mm wide. Tibiae I–IV .60, .65, .60, .67 mm long, respectively. Metatarsi I–IV .48, .62, .62, .71 mm long, respectively.

Male from St. Augustine, Trinidad, with structure essentially as in female, except as follows: Abdomen smaller in comparison to carapace, carapace higher in eye area and sloping more sharply at posterior declivity. Eye area wider in proportion to length, AME slightly larger. Calamistrum lacking on metatarsus IV. Coloration somewhat paler than in female. Palpus as in Figures 52, 53. Total length, .92 mm. Carapace .65 mm wide, .77 mm long. Tibiae I–IV .53, .60, .55, .57 mm long, respectively. Metatarsi I–IV .45, .57, .54, .64 mm long, respectively.

Ecological Notes. This species is very common both inside and outside of buildings in the West Indies, and is the only species occurring there. The types of *O. audanti* and *O. benneri* were both taken in buildings. Bryant (1940) found this spider on garden foliage in Cuba; Dr. A. M. Chickering has collected literally hundreds of individuals from buildings. Mature males and females occur in the West Indies at all times of the year. The Florida specimens are all from areas of good tree cover, and only one was found on the outside of a building; the others were collected from under boards on the ground and under flakes of bark.

Map 3. Mexico and Southern United States, showing distribution of *O. beatus*, *O. putus*, and *O. civitas*.

Distribution. Islands of the Caribbean, Peninsular Florida, coastal Mexico, Central America, Venezuela, and Columbia (Map 2).

Oecobius beatus Gertsch and Davis

Figures 20, 33, 54, 55; Map 3

Oecobius beatus Gertsch and Davis, 1937, Amer. Mus. Novitates, 961: 2, figs. 1, 2, ♀; female holotype from Acapulco, Guerrero, in American Museum of Natural History, examined. Bryant, 1948, Psyche, 55: 57 (in part). Roewer, 1954, Katalog der Araneae, 2: 1289. Bonnet, 1958, Bibliographia Araneorum, 2: 1289.

Note. The "allotype male" so designated by Bryant (1948) in the Museum of Comparative Zoology is a male of *O. concinnus.*

The Acapulco females from a vial with the same data as the "allotype" are *O. beatus*. Specimens from Tamaulipas in the American Museum included true *O. beatus*, both males and females, and descriptions given here are based on those specimens.

Diagnosis. Distinguished by its small size and color from all other sympatric species except *O. bracae*, from which it may be separated by reference to the figures of the genitalia.

Description. Female from Rio Frio, Tamaulipas: carapace (Fig. 20) suboval, wider than long (L/W = 1/1.1), clypeal projection evenly rounded, with distinct shoulders at base of clypeus; carapace highest in eye area and sloping evenly in all directions, more sharply posteriorly, glabrous, with few scattered plumose hairs. Eye area wider than long (L/W = 1/1.6), eyes in two rows, both rows slightly procurved. PLE much the largest, separated by two and one-fourth times their diameter. PME irregular, opalescent, less than twice as long as wide, separated from each other by one and one-half times their greatest width, from ALE by their greatest width. AME round, dark, one-half diameter of PLE, separated from each other by two diameters, from PLE by one diameter. ALE irregular, opalescent, separated from AME by less than radius of AME. Epigynum as in Figure 33. Remainder of structure typical for the genus. Carapace yellow-white, PLE and AME ringed with black, dusky area surrounding eyes faint. Posterior part of carapace with irregular dusky band extending from just behind eye area to posterior margin, nearly discontinuous just anterior to thoracic groove, where it shows broad lateral extensions, "spectacle-like" light markings midway between thoracic groove and posterior margin of carapace. Clypeus light. Marginal band black, with dusky extensions at clypeal shoulder, three dusky extensions contacting three dark spots midway between central band and marginal line. Abdomen grayish white, with chalky blotches except in cardiac area. Dark brown markings nearly covering abdomen laterally and extending ventrally, leaving central light band on venter. Spinnerets and anal tubercle light, surrounded by dark area. Legs yellowish white, with annuli as in *O. concinnus*, but lighter and less distinct. Total length, 1.95 mm. Carapace .67 mm long, .74 mm wide. Tibiae I–IV .51, .50, .50, .52 mm long, respectively. Metatarsi I–IV .50, .51, .50, .56 mm long, respectively.

Male from Rio Frio, Tamaulipas, with structure and coloration essentially as in female, except as follows: carapace much wider in proportion to length (L/W = 1/1.14), larger in proportion to abdomen, flatter than in female, sloping more gradually from eye area. Eye area wider in proportion to length than in female (L/W = 1/2.6), eyes smaller, more dispersed. Legs proportionally somewhat longer than in female. Calamistrum absent from metatarsus IV. Palpus as in Figures 54, 55. Total length, 1.80 mm. Carapace .71 mm long, .81 mm wide. Tibiae I–IV .60, .56, .55, .60 mm long, respectively. Metatarsi I–IV .60, .56, .60, .64 mm long, respectively.

Ecological Notes. This species is found both on buildings and under stones.

Distribution. Tamaulipas, San Luis Potosí, Guerrero (Map 3).

Oecobius putus O. P.- Cambridge
Figures 1, 2, 17, 34, 56, 57; Map 3

Oecobius putus O. P.-Cambridge, 1876, Proc. Zool. Soc. London, p. 544–545, pl. 58, figs. 1a–1d, ♂; type specimens from ruined temple between Denderah and Assouan, additional material from Temple of Philae, Egypt. Roewer, 1954, Katalog der Araneae, 2: 1289. Bonnet, 1958, Bibliographia Araneorum, 2: 3134. Tikader, 1962, J. Bombay Nat. Hist. Soc., 59: 683,

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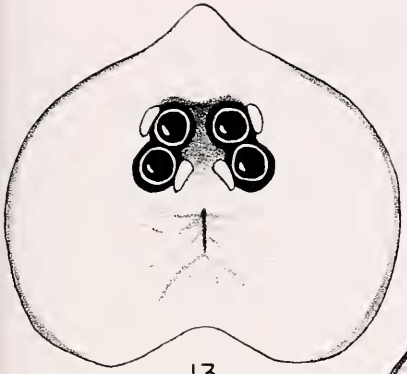
Dorsal views of carapaces. Figs. 13–20. 13. *Oecobius cellariorum*. 14. *O. annulipes*. 15. *O. concinnus*. 16. *O. interpellator*. 17. *O. putus*. 18. *O. isolatus*. 19. *O. isolatoides*. 20. *O. beatus*.



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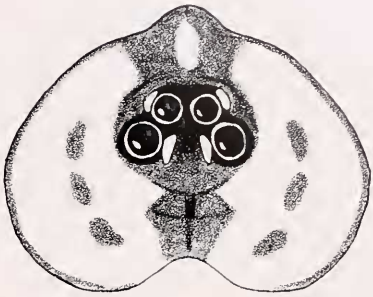

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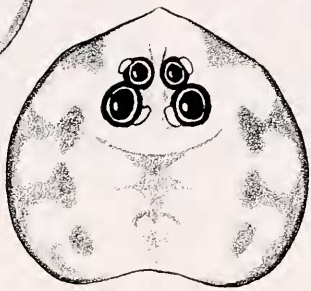

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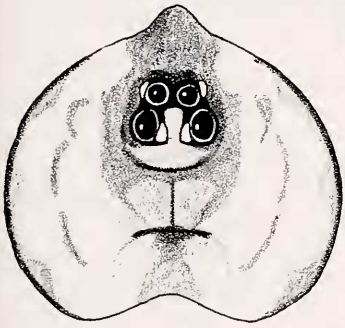

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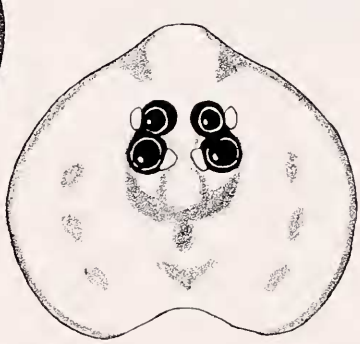

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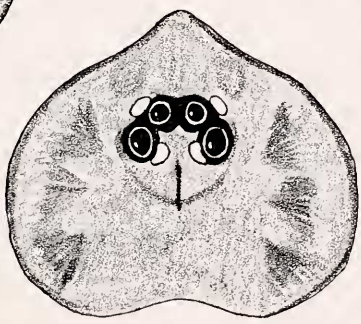

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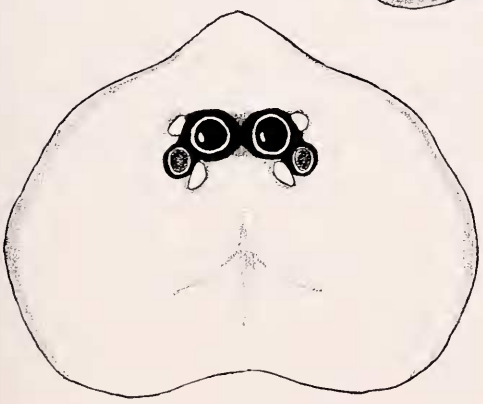

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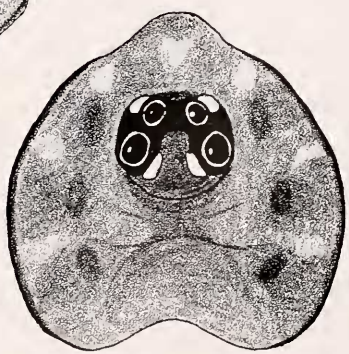

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1 mm

figs 1a–1d, ♂ ♀. Kritscher, 1966, Ann. Naturhist. Mus. Wien., 69: 290–291, pl. 1, fig. 11, pl. 2, fig. 12, ♂.
Ambika putus, Lehtinen, 1967, Ann. Zool. Fenn., 4: 433, fig. 32, ♀.

Diagnosis. Dinstinguished from all other Nearctic and Neotropical species of *Oecobius* by its large size, having the AME much the largest, and its lack of pattern.

Description. Female from Yuma, Arizona: carapace (Fig. 17) oval, wider than long (L/W = 1/1.2), with distinct shoulders on margin opposite eye region, clypeal projection evenly rounded. Carapace highest in eye area, sloping gradually and evenly in all directions. Thoracic groove transverse, indistinct. Eye area wider than long (L/W = 1/1.6), eyes in two transverse, slightly procurved lines. AME much the largest, separated by one diameter, ALE irregular, opalescent, separated from AME by their width. PLE slightly oval, one-half diameter of AME, separated from each other by nearly five times their diameter and from AME by their radius. PLE light, but not opalescent. PME irregular, subtriangular, opalescent, separated by nearly four times their width, almost contiguous with PLE. Spinnerets, cribellum, anal tubercle surrounded by a lightly sclerotized rim which bears a circle of long, incurved plumose hairs similar to those on anal tubercle. Legs with scattered hairs and few spines, spines irregularly arranged, but always present on ventrodistal portion of tibiae and metatarsi as pair of prolateral articular spines. Epigynum as in Figure 34. Remainder of structure as described for genus. Carapace off-white, unmarked except for black area around AME and PLE. Dusky marginal line faintly indicated, vague gray area around thoracic groove. Remainder of prosoma and legs off-white, unmarked. Abdomen pale gray, blotched chalky white. Venter pale gray, unmarked. Spinnerets and anal tubercle off-white. Total length, 3.15 mm. Carapace .94 mm long, 1.11 mm wide. Tibiae I–IV .91, 1.01, 1.01, 1.06 mm long, respectively. Metatarsi I–IV .86, 1.03, 1.12, 1.20 mm long, respectively.

Male from Yuma, Arizona, with structure essentially as in female, except as follows: carapace more nearly circular (L/W = 1/1.08), legs longer, thinner in proportion to body size. Calamistrum absent, cribellum suppressed. Body much more heavily clothed with plumose hairs, those on ridge around spinnerets much less obvious. Palpus as in Figures 56, 57. Coloration similar to that of female. Total length, 2.63 mm. Carapace 1.05 mm long, 1.13 mm wide. Tibiae I–IV .85, .86, .89, .97 mm long, respectively. Metatarsi I–IV .98, 1.00, .99, 1.10 mm long, respectively.

Ecological Notes. Mature males and females of this species were taken in January and February in Baja California, in April in Arizona and in May in Big Bend National Park, Texas. Mature specimens taken from June to August are represented from all these localities. At Tucson, Arizona, the species is common on the outsides of University buildings, with small webs stretched over "superficial inequalities," as Cambridge (1876) elegantly stated in the original description. Debski (1922) published more detailed reports on the ecology of this species and of *O. templi.* Only one collection places this spider away from buildings: a female was taken in a packrat nest near Sufford, Arizona.

Distribution. See Map 3. Southern California, southern Arizona, extreme westen New Mexico, southwestern Texas, northern Sonora and Chihuahua, and Baja California. Because of its synanthropic habits, this species is spread by man, and occurs throughout Africa (Paris Museum specimens fom Tanganyika examined by Ledoux) and India (Tikader, 1962).

Oecobius interpellator new species
Figures 16, 36, 58, 59; Pl. 1, Figures 1, 2

Holotype. Female from Cambridge, Massachusetts, Biological Laboratories, Harvard University, 20 February 1963, collected by J. A. Beatty, in the Museum

Plate I. Fig. 1. *Oecobius interpellator* female, dorsal view. Fig. 2. *O. interpellator* female and eggs in old web. The female later left the old web and built a new one in another part of the container.

of Comparative Zoology. Paratype male from the same locality in the Museum of Comparative Zoology. The specific epithet is a Latin noun in apposition, meaning invader, foreigner, or stranger.

Diagnosis. As a result of its limited distribution in the Nearctic region, this species is sympatric only with *O. annulipes*, to which it bears superficial resemblance. However, the epigynum of *O. interpellator* lacks a scape, and the palpus (Fig. 58) is distinct from that of *O. annulipes* in having a much larger conductor.

Description. Female from Cambridge, Massachusetts: carapace (Fig. 16) wider than long (L/W = 1/1.4), suboval, clypeal projection evenly rounded, almost squared off when seen from above. Eye area highest portion of carapace, carapace sloping evenly in all directions, slightly more abruptly to clypeus. Eyes in two nearly straight rows, PLE the largest, separated by slightly more than one diameter; PME irregular, opalescent, nearly contiguous with PLE, separated from each other by slightly less than their greatest width; PME round, dark, three-fourths as large as PLE and separated from PLE by a radius, from each other by one and one-fourth diameters; PLE oval, opalescent, nearly as large as PME, almost contiguous with PME. Epigynum (Fig. 36) of the *O. concinnus – O. beatus* pattern; copulatory openings anterior, separated by raised, wrinkled ridge resembling scape; ridge traversed medially by fertilization tubes, which turn abruptly laterad near posterior end of ridge, then curve back mesad and ventrad to open on either side of an oval depressed region limited anteriorly by blunt end of wrinkled ridge and posteriorly by transverse sclerotized rim. Internal genitalia fitting the *O. concinnus* pattern. Remainder of structure as described for genus. Coloration very similar to *O. annulipes;* carapace pale off-white with dusky marginal line; eyes ringed with black; vaguely indicated dusky area behind eyes extending in darker specimens to posterior margin of carapace, most specimens marked as shown in Figure 16; three submarginal dusky spots on each side. Abdomen unmarked with dusky areas, yellowish gray blotched chalky white. Sternum, coxae of legs and venter of abdomen off-white. Legs unmarked. The general impression is one of an intermediate between *O. annulipes* and *O. cellariorum.* Total length, 2.13 mm. Carapace .77 mm long, .88 mm wide. Tibiae I–IV .75, .71, .68, .79 mm long,

respectively. Metatarsi I–IV .68, .64, .65, .73 mm long, respectively.

Male from Cambridge, Massachusetts, with structure essentially as in female, except as follows: carapace somewhat rounder (L/W = 1/1.08); eye area wider in proportion to length than in female (L/W = 1/1.8); eyes smaller. Abdomen much smaller in proportion to carapace than in female. Calamistrum lacking from metatarsus IV. Palpal organ (Figs. 58, 59) of moderate size; radical apophysis absent; radix slightly produced at posterior lateral edge. Remainder of palpal structure close to *O. concinnus*. Coloration similar to female, but paler in most cases. Total length, 1.29 mm. Carapace .76 mm long, .82 mm wide. Tibiae I–IV .65, .71, .67, .73 mm long, respectively. Metatarsi I–IV .60, .65, .64, .72 mm long, respectively.

Ecological Notes. The mode of life of this species is very similar to that of *O. annulipes*. Despite extensive remodelling of the rooms in which it was originally collected, *O. interpellator* is still (September, 1968) remarkably common in the two rooms composing the insectary, and has spread to several adjacent rooms. All sizes except mature males were observed 20 September 1968, including six egg masses (Pl. 1, Fig. 2) left *in situ*, all containing four eggs. The collection from which the types were taken contained nearly forty mature males and females (February, 1963). Webs (Pl. 1, Fig. 1) cover virtually every corner and depression between cinder blocks, and are about a centimeter square, of the tubular type described by Glatz (1967). Debris in the webs consisted of tiny cockroach nymphs and small ants, all of which had been sucked dry without obvious damage to the cuticle. When prodded from their webs, the spiders run with great agility over the walls, but seem unable to cling to smooth, clean surfaces.

Distribution. Known only from the type locality. Presumably this species was imported with tropical cockroaches or ants. A sketch by Ledoux of a female in the British Museum (Natural History) from Noumea, New Caledonia, closely resembles this species.

Map 4. Southwestern North America, showing distribution of *O. isolatus* and *O. isolatoides*.

Oecobius isolatus Chamberlin
Figures 18, 35, 60, 61; Map 4

Oecobius isolatus Chamberlin, 1924, Proc. California Acad. Sci., 12: 584; immature holotype from Carmen Island, Gulf of California, in American Museum of Natural History, examined. Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 270, pl. 1, fig. 2, ♀. Roewer, 1954, Katalog der Araneae, 2: 1290. Bonnet, 1958, Bibliographia Araneorum, 2: 3133.

Oecobius parvus Chamberlin and Ivie, 1942, Bull. Univ. Utah, Biol. Ser., 32; 13; immature holotype from Virgin Narrows, near Littlefield, Arizona, in American Museum of Natural History, examined. Roewer, 1954, Katalog der Araneae, 2: 1290. NEW SYNONYMY.

Note. Both *O. isolatus* and *O. parvus* were described from immature specimens, a single example in the case of *O. parvus*

and two specimens of *O. isolatus*. Paratypes and holotypes of both were studied, and no structural differences in eyes and other features could be discerned. Only color and pattern differed, *O. parvus* resembling a very light *O. isolatus*.

The northernmost record of *O. isolatus* is in southwestern Yuma County, Arizona, and the southernmost for *O. parvus* is just over the Arizona-Utah border. But even in the absence of intermediate records, I am inclined to synonymize *O. parvus* under *O. isolatus*, since the only mature female available from the range of *O. parvus* has an epigynum identical to *O. isolatus*. Also, there is a distinct tendency for specimens of *O. isolatus* from the Baja peninsula to be somewhat darker than those from Arizona and California. If this trend is extrapolated, a light, *O. parvus*-like *O. isolatus* would be expected to occur in southern Utah. Additional collecting throughout extreme western Arizona is much to be desired.

Diagnosis. This species belongs to what might be termed the "Mexican group," a series of similar species (dark carapaces, broad epigynal scapes, palpi with large stipal and/or radical apophyses) obviously native to the region and not synanthropic. These species are best separated by reference to the figures, though *O. isolatus* is not sympatric with any of the others (Map 4). It is most closely related to *O. isolatoides*, but the palpus differs (Fig. 60), and the epigynal scape is not narrowed distally.

Description. Female from Fortuna Mine, Yuma County, Arizona: carapace (Fig. 18) subcircular, clypeal projection evenly rounded, more than one-fourth length of carapace, distinct shoulders at base of clypeal projection. Carapace nearly glabrous, with scattered plumose hairs. Eyes on distinct tubercle, sloping evenly to clypeus, but abruptly behind, then sloping gradually to posterior declivity. Posterior declivity sharp, limiting distinctly lower, lunate posterior area. Eyes in two rows, both moderately procurved. PLE the largest, separated from each other by two and one-half diameters; PME irregular, opalescent, separated from PLE by their width and from each other by their length. AME three-fourths diameter of PLE, separated from each other by one diameter and from PLE by one-half diameter of PLE. ALE irregular, opalescent, as large as AME, nearly contiguous with AME. Remainder of structure essentially as described for the genus. Epigynum (Fig. 35) large, with a broad scape, tracks of fertilization ducts visible in scape. Carapace entirely dark brown, eyes ringed with black, marginal line black, three lighter spots on each side just above marginal line. Coxae of legs, endites, labium pale yellow, sternum light brown. Abdomen blotched chalky dorsally, dark brown pattern near that described for *O. annulipes*. Venter pale, spinnerets and anal tubercle dark brown, surrounded by dark brown area. Legs with lateral maculae as follows: two maculae mesal and distal on all segments except patella and tarsi, patella wholly dark laterally, tarsi dark distally. Distal lateral maculae on tibiae and metatarsi forming complete or nearly complete rings. Total length, 2.40 mm. Carapace .87 mm long, .85 mm wide. Tibiae I–IV .68, .72, .65, .67 mm long, respectively. Metatarsi I–IV .65, .67, .68, .78 mm long, respectively.

Male from Roosevelt Dam, Yuma County, Arizona, with structure essentially as in female, except as follows: carapace flatter, broader in relation to width, much larger in comparison with abdomen. Eye area nearly twice as wide as long, eyes more dispersed. Coloration paler, but of the same pattern. Palpus (Figs. 60, 61) with a falcate apophysis on stipes and large, weakly sclerotized radical apophysis. Total length, 2.17 mm. Carapace .86 mm long, .98 mm wide. Tibiae I–IV .67, .68, .68, .76 mm long, respectively. Metatarsi I–IV .68, .74, .75, .82 mm long, respectively.

Ecological Notes. Nothing is known of this species' ecology.

Distribution. (Map 4) Lower Colorado Basin, Baja California.

Oecobius *isolatoides* new species
Figures 19, 37, 62, 63; Map 4

Holotype. Female from El Coyote, Sonora, 17.7 miles (28.3 kilometers) east of Rio Bavisbe and 48 miles (76.8 kilometers) east of Moctezuma, elev. 3200′, 12 July 1960, J. A. Beatty; paratype male from the same locality, in the American Museum of Natural History.

Diagnosis. The scape of the epigynum is nearly twice as long as wide, narrowed distally, and not folded; this combination of characters occurs in no other species of the "Mexican group." The male palpus resembles that of *O. isolatus*, but the radical apophysis of *O. isolatoides* is wider in proportion to its length, and not knobbed at the tip.

Description. Female from El Coyote, Sonora: carapace (Fig. 19) oval, wider than long (L/W = 1/1.1), clypeal projection evenly tapering from lateral margins, bluntly pointed. Carapace highest in eye area, sloping gently in all directions. Thoracic groove indistinct. Eye area wider than long (L/W = 1/1.7), eyes in two transverse, distinctly procurved rows. PLE the largest, separated by slightly more than two and one-half diameters. AME little more than half the diameter of PLE, separated from each other by one diameter and from PLE by a radius. PME opalescent, irregular-triangular, separated from each other by one and one-fourth their greatest width and from PLE by half their greatest width. ALE oval, opalescent, nearly as large as AME, separated from AME by their width. Epigynum (Fig. 37) with prominent scape, tapering to less than half its basal width, edges sigmoid. Fertilization tubes diverging at midlength, converging slightly near their openings. Remainder of structure as described for genus. Carapace nearly even medium tan, margins darker, submarginal dark shadings obsolete in some specimens. Eyes ringed with black. Remainder of coloration as described for *O. isolatus.* Total length, 2.04 mm. Carapace .77 mm long, .86 mm wide. Tibiae I–IV .56, .64, .59, .67 mm long, respectively. Metatarsi I–IV .56, .60, .60, .71 mm long, respectively.

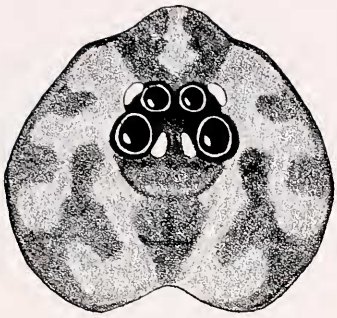
Male from El Coyote, Sonora, with structure essentially as in female, except as follows: carapace slightly flatter, wider in proportion to length (L/W = 1/1.12), eyes slightly smaller, more dispersed. Abdomen smaller in proportion to carapace, body generally more densely hairy. Sternum margined with specialized hairs. Coloration as described for female, but lighter in some specimens. Palpus (Figs. 62, 63) large, bulky. Radical apophysis blunt, gnarled, almost meeting process of stipes, which is smoothly curved and truncate. Conductor complex, intromittent portion of embolus concealed, visible only in direct ventral view as a short, heavily sclerotized curved spine. Total length, 1.82 mm. Carapace .75 mm long, .83 mm wide. Tibiae I–IV .56, .60, .57, .64 mm long, respectively. Metatarsi I–IV .53, .60, .59, .63 long, respectively.

Ecological Remarks. The Sonoran and Sinaloan localities are in desert thorn scrub. The type species were found under stones on a dry hillside. In Arizona, the species occurs in mountains, probably in the transition between Sonoran desert and woodland. Mature individuals have been collected in April, July, and August.

Distribution. (Map 4) Mountain foothills in Sonora, northern Sinaloa, and southern Arizona.

Oecobius *piaxtla* new species
Figures 21, 38, 64, 65

Holotype. Female from 20 miles (32 kilometers) west of Piaxtla, Sinaloa, 2 August 1964, W. J. Gertsch and J. Woods, collectors, in the American Museum of Natural History; male paratype from the same locality in the same museum. The specific name is a noun in apposition, after the type locality.



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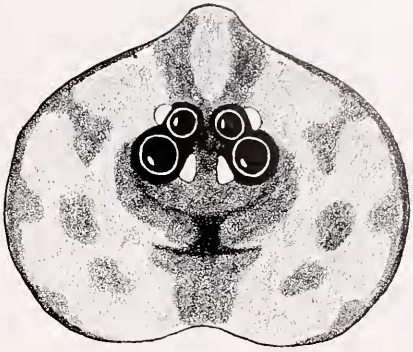

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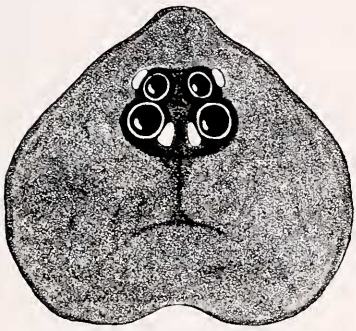

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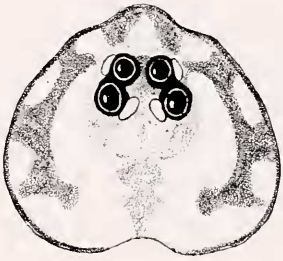

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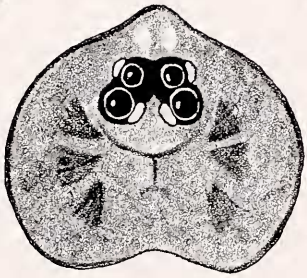

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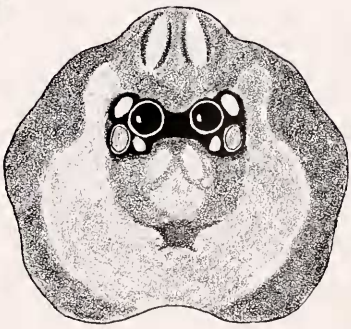

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1 mm

Dorsal views of carapaces. Figs. 21–27. 21. *Oecobius piaxtla*. 22. *O. rivula*. 23. *O. juangarcia*. 24. *O. bracae*. 25. *O. civitas*. 26. *O. culiacanensis*. 27. *Plataecobius floridanus*.

Diagnosis. Distinct from others of the "Mexican group" in details of the genitalia. The epigynal scape (Fig. 38) is as wide as long, and narrowed distally; the only species with a similar pattern is *O. civitas*, in which the scape is not narrowed distally. The male palpus (Figs. 64, 65) is somewhat smaller than the others bearing both stipal and radical apophyses.

Description. Female from 20 miles (32 kilometers) west of Piaxtla, Sinaloa: carapace (Fig. 21) subcircular (L/W = 1/1.12), clypeal projection low and rounded, shoulders at base of clypeal projection distinct. Carapace highest in eye area, sloping evenly in all directions; thoracic groove transverse, poorly indicated. Eyes in two slightly procurved rows; eye area nearly half again as wide as long (L/W = 1/1.35). PLE the largest, separated by nearly two diameters; PME irregular, opalescent, separated from each other by their greatest width, nearly contiguous with PLE. AME two-thirds diameter of PLE, separated from each other by slightly more than one radius, nearly contiguous with PLE; ALE irregular, opalescent, nearly contiguous with AME. Epigynum (Fig. 38) with scape as wide or slightly wider than long, traversed by fertilization ducts. Internal genitalia of the *O. civitas* pattern, but copulatory ducts open almost immediately into spermathecae. Remainder of structure as described for genus. Carapace with light brown ground color, overlaid with dark brown pattern as in Figure 21. Eyes ringed with black, eye tubercle dark brown to black; clypeus light mesally, with two parallel dark bands laterally; marginal line black, with dark brown areas extending into submarginal region as figured; dark brown band extending from eye tubercle to posterior margin of carapace. Labium light brown, sternum light brown, margined dark brown. Leg annulations of the typical pattern; all incomplete. Total length, 2.82 mm. Carapace .77 mm long, .83 mm wide. Tibiae I–IV .48, .49, .48, .56 mm long, respectively. Metatarsi I–IV .45, .49, .47, .54 mm long, respectively.

Male from 20 miles (32 kilometers) west of Piaxtla, Sinaloa, with structure essentially as in female, except as follows: carapace wider in proportion to length, eyes smaller, more dispersed than in female. Carapace with two lunate submarginal depressions, presumably serving for muscle attachment for palpus. Palpus (Figs. 64, 65) large, tegular apophysis complex, nearly trifid; conductor broadly spatulate, embolus with all the usual processes well developed and large. Coloration as in female, somewhat lighter. Total length, 2.00 mm. Carapace .80 mm long, .90 mm wide. Tibiae I–IV .53, .59, .56, .62 mm long, respectively. Metatarsi I–IV .51, .56, .58, .64 mm long, respectively.

Ecological Notes. Found under rocks in desert thorn scrub.

Distribution. Known only from the type locality.

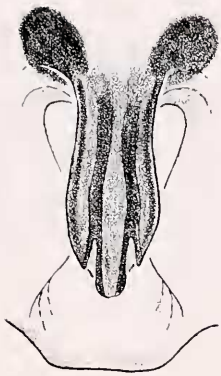
Oecobius rivula new species
Figures 7, 8, 22, 39, 68, 69

Holotype. Female from 32 miles (51.2 kilometers) east of Villa Union, Sinaloa, 26 August 1965, collected by W. J. Gertsch and J. Hastings; paratype male from the same locality, in the American Museum of Natural History. The specific epithet is a noun in apposition, Latin for crevice.

Diagnosis. Easily distinguished from all others of the "Mexican group" by the folded epigynal scape with a perforation at the tip (Fig. 39), and by the extraordinarily massive male palpus with an elongate cluster of small knobs on the inner side of the radical apophysis (Fig. 69).

Description. Female from 32 miles (51.2 kilometers) east of Villa Union, Sinaloa: carapace (Fig. 22) suboval, wider than long (L/W = 1/1.16), clypeal projection evenly rounded, shoulders lacking at base of clypeus. Carapace highest in eye region, sloping gradually in all directions, somewhat more steeply to clypeus. Eye area

28



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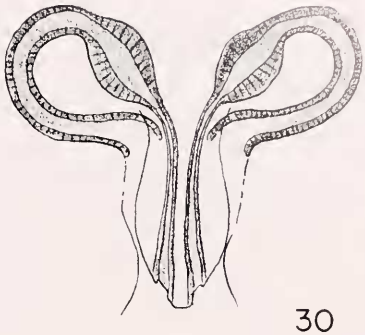

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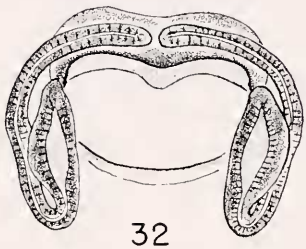

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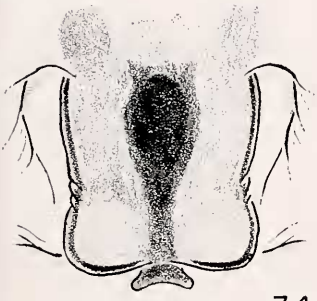

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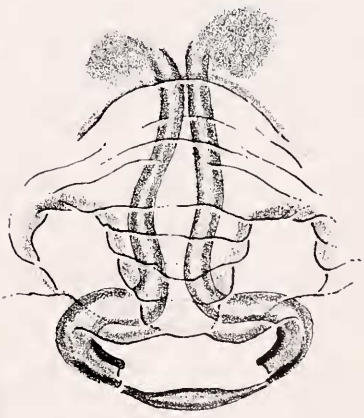

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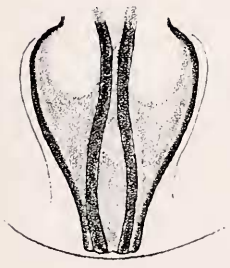

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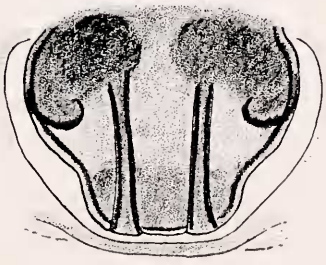

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emale epigyna. Figs. 28–38. 28. *Oecobius cellariarum*, ventral view. 29. *O. annulipes*, ventral view. 30. *O. annulipes*, larsal view. 31. *O. concinnus*, ventral view. 32. *O. concinnus*, darsal view. 33. *O. beatus*, ventral view. 34. *O. putus*, entral view. 35. *O. isalatus*, ventral view. 36. *O. interpellatar*, ventral view. 37. *O. isolataides*, ventral view. 38. *O. iaxtla*, ventral view.

wider than long (L/W = 1/1.88); eyes in two slightly procurved rows. PLE much the largest, separated from each other by two and one-quarter diameters; PME irregular, opalescent, separated from each other by one and one-quarter their greatest width, from PLE by one-half their greatest width; AME two-thirds diameter of PLE, separated from each other by slightly less than one diameter, from PLE by less than a radius; ALE irregular, opalescent, nearly contiguous with AME. Epigynum (Fig. 39) large, well-defined, lying in depression that is longer than wide. Scape long, folded anteriorly, then posteriorly, most anterior portion when seen in ventral view broadly rounded, tapering to less than half its width. Fertilization ducts clearly visible in scape; tip of scape with small, round perforation. Remainder of structure typical for genus. Ground color of carapace light brown, eyes ringed with black; central dark brown band forked anterior to eyes, central part of clypeus light. Marginal band dark brown, widened opposite coxae of legs. Submarginal spots in some cases connected to marginal band. Sternum, labium, and venter light, as described for *O. isolatus*. Leg annulations incomplete, as described for *O. isolatus*. Total length, 3.05 mm. Carapace .92 mm long, 1.05 mm wide. Tibiae I–IV .76, .76, .75, .80 mm long, respectively. Metatarsi I–IV .75, .75, .75, .83 mm long, respectively.

Male from 32 miles (51.2 kilometers) east of Villa Union, Sinaloa, with structure essentially as in female except as follows: carapace slightly longer in proportion to width (L/W = 1/1.08); eyes smaller more dispersed than in female. Carapace with two deep submarginal lunate depressions, possibly associated with muscle attachments for massive palpi. Remainder of structure as described for genus. Palpus (Figs. 68, 69) unusually large, massive; radical apophysis forked apically, coarsely rugose on mesal edge; hooks of conductor close together; stipal hook large, as long as cymbium, spatulate distally. Coloration as described for female, somewhat lighter. Total length, 2.34 mm. Carapace 1.05 mm long, 1.14 mm wide. Tibiae I–IV .70, .75, .71, .79 mm long, respectively. Metatarsi I–IV .70, .71, .70, .80 mm long, respectively.

Ecological Notes. The specimens were collected at the type locality from a deep, wet crevice.

Distribution. This species is known only from the type locality.

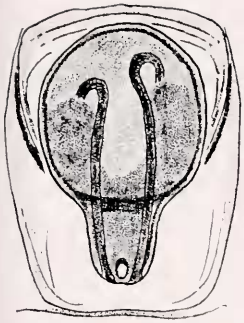
Oecobius juangarcia new species

Figures 23, 40, 66, 67

Holotype. Female from Juan Garcia, Oaxaca, 1 September 1964, collected by J. and W. Ivie; male paratype from same locality, both in American Museum of Natural History. The specific name is a noun in apposition, after the type locality.

Diagnosis. Distinct from others of the "Mexican group" in the centrally depressed epigynal scape (Fig. 40), and the less complex palpus (Figs. 66, 67) which lack a radical apophysis. A radical apophysis is lacking in *O. civitas* also, but the general appearance of the palpus is quite different, particularly in the conductor.

Description. Female from Juan Garcia, Oaxaca: carapace (Fig. 23) suboval (L/W = 1/1.3), clypeal projection indistinct, rounded, shoulders at base of clypeal projection poorly developed. Carapace with scattered plumose white hairs. Eyes on low tubercle, sloping evenly in all directions to margin of carapace; thoracic furrow indistinct. Eyes in two slightly procurved rows; eye area wider than long (L/W = 1/1.28). PLE the largest, separated from each other by slightly more than one diameter; PME irregular, opalescent, nearly contiguous with PLE, separated from each other by their greatest width. AME two-thirds diameter of PLE, narrowly separated from PLE; separated from each other by slightly more than one diameter; ALE irregular, opalescent, nearly contiguous with AME. Epigynum (Fig. 40) as wide as long, somewhat reniform; scape margined, perforated anteriorly with



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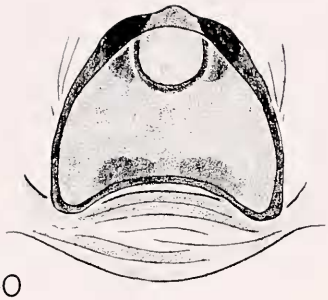

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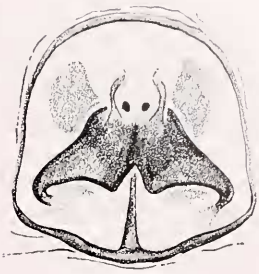

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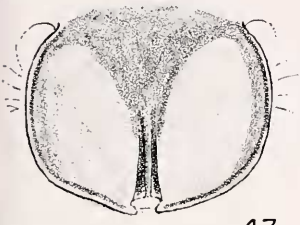

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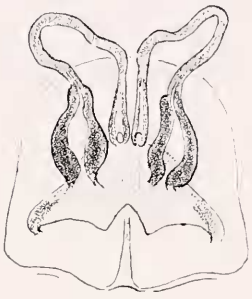

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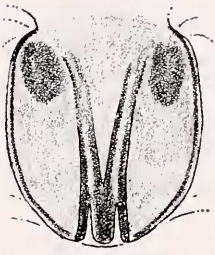

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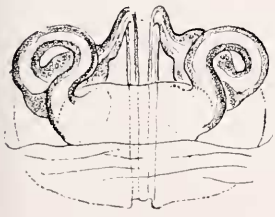

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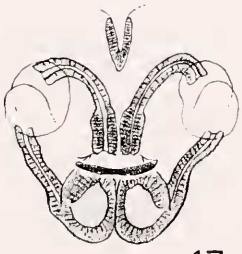

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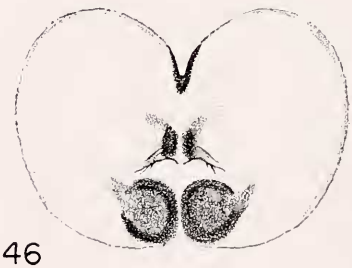

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Female epigyna. Figs. 39–47. 39. *Oecobius rivula*, ventral view. 40. *O. juangarcia*, ventral view. 41. *O. bracae*, ventral view. 42. *O. bracae*, dorsal view. 43. *O. civitas*, ventral view. 44. *O. civitas*, dorsal view. 45. *O. culiacanensis*, ventral view. 46. *Platoecobius floridanus*, ventral view. 47. *P. floridanus*, dorsal view.

a large fossa. Internal genitalia not examined on only available female specimen, but presumably similar to *O. rivula*. Remainder of structure as described for genus. Carapace entirely medium brown, eyes ringed with black, eye area dark brown. Coxae of legs, endites, pale yellow, labium and sternum medium brown. Abdomen blotched chalky dorsally, with typical pattern of dark brown areas; venter mostly pale. Legs annulated and blotched as described for *O. isolatus*. Total length, 2.56 mm. Carapace .80 mm long, .91 mm wide. Tibiae I–IV .52, .53, .51, .57 mm long, respectively. Metatarsi I–IV .50, .50, .49, .59 mm long, respectively.

Male from Juan Garcia, Oaxaca, with structure essentially as in female except as follows: carapace wider in proportion to length (L/W = 1/1.22); eyes smaller, more dispersed, eye area wider in proportion to length than female (L/W = 1/1.4). Cara-

pace with two submarginal lunate depressed areas, presumably serving as points of muscle attachment for palpi. Palpus (Figs. 66, 67) strongly modified from basic form described for *O. isolatus*, distal portion of stipes greatly lengthened and curved around face of radix; intromittent portion emerging from behind conductor ventromesally; conductor reduced, radical apophysis absent. Total length, 2.01 mm. Carapace .76 mm long, .93 mm wide. Tibiae I–IV .48, .49, .46, .52 mm long, respectively. Metatarsi I–IV .49, .51, .46, .60 mm long, respectively.

Ecological Notes. Little is known of the ecology of this species. A male from near Tehuantepec, Oaxaca, was taken from a small web between the ribs of a cereoid cactus.

Distribution. Central Oaxaca.

Oecobius bracae new species

Figures 24, 41, 42, 70, 71

Holotype. Female from three miles (4.8 kilometers) west of Tehuantepec, Oaxaca, 28 April 1963, collected by W. J. Gertsch and W. Ivie; paratype male from the same locality, both in the American Museum of Natural History. The specific epithet is a Latin noun in apposition, "a short, pants-like garment," and is derived from the unusual form of the epigynum.

Diagnosis. The color pattern distinguishes this species from all others in the "Mexican group," but could lead to confusion with *O. beatus*. The epigynal scape is highly distinctive in both species; in *O. bracae* (Fig. 41) the fertilization tubes open flush with the surface, in *O. beatus* (Fig. 33) they open on the tips of short projections. The palpus of *O. bracae* (Fig. 71) has a much smaller stipes than that of *O. beatus* (Fig. 55).

Description. Female from three miles (4.8 kilometers) west of Tehuantepec, Oaxaca: carapace (Fig. 23) nearly rounded (L/W = 1/1.03), clypeal projection blunt, clypeal shoulders fairly distinct. Carapace evenly domed at eye area, sloping almost at an equal angle in all directions. Eyes in two rows, first row nearly straight, second perceptibly procurved. Eye area wider than long (L/W = 1/1.5). PLE the largest, separated by twice their diameter; PME irregular, opalescent, nearly contiguous with PLE, separated from each other by slightly less than their greatest width. AME nearly three-fourths diameter of PLE, separated from each other by a little less than their diameter and from PLE by their radius; ALE opalescent, irregular, nearly contiguous with AME. Female epigynum very distinctive, consisting of a deep, semi-rectangular depression in which prominent, flared openings of vulvae are situated (Fig. 41). Anteriorly, fertilization tubes open into a shallow, rimmed depression. Internally (Fig. 42), a single pair of spermathecae open almost directly to outside, fertilization tubes curve far anteriorly just under cuticle until they loop back to open as described above. Remainder of structure typical for genus. Carapace off-white, eyes ringed black which separates them into two lateral groups, eye tubercle covered by extensive dusky area interrupted by two symmetrical light areas immediately behind eyes, and extending as irregular band to posterior margin of carapace. Submarginal band dark brown, connected with brownish black marginal line just behind clypeal shoulders and at two other points evenly spaced posteriorly. Clypeus dark brown, with central white area. Abdomen pale gray, blotched chalky, cardiac mark brown. Legs banded as follows: incomplete median and distal bands on femur, tibia and metatarsus; patella with a single, distal band, incomplete dorsally. Tarsus somewhat darker distally. Remainder of coloration as described for *O. beatus*. Total length, 1.96 mm. Carapace .63 mm long, .65 mm wide. Tibiae I–IV .38, .38, .40, .48 mm long, respectively. Metatarsi I–IV .39, .42, .41, .50 mm long, respectively.

Male from three miles (4.8 kilometers) west of Tehuantepec, Oaxaca, with struc-

ture essentially as in female except as follows: carapace somewhat wider in relation to length (L/W = 1/1.1), eye group more compact (L/W = 1/.96). Legs longer in proportion to body, body more densely hairy. Coloration as in female, carapace of some specimens more lightly marked. Papal organ (Figs. 66, 67) of the moderately large type, as figured. Total length not known, abdomen missing on all mature male specimens. Carapace .55 mm long, .61 mm wide. Tibiae I–IV .34, .35, .33, .43 mm long, respectively. Metatarsi I–IV .36, .37, .37, .45 mm long, respectively.

Ecological Notes. Nothing is known of the ecology of this species.

Distribution. Central Oaxaca.

Oecobius civitas new species

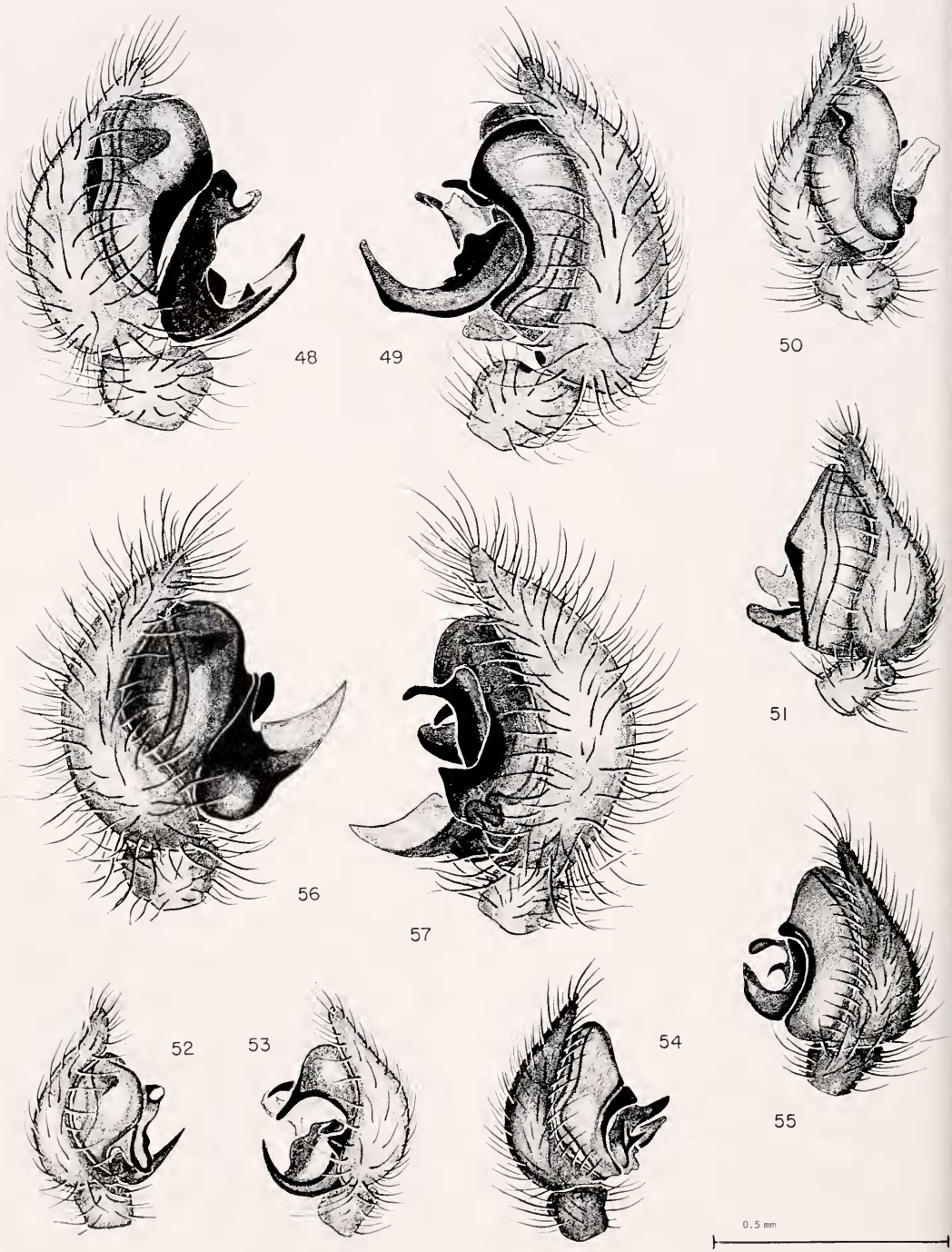
Figures 25, 43, 44, 72, 73; Map 3

Holotype. Female from west side of Lake Sayula, Jalisco, 30 July 1964, collected by W. J. Gertsch and J. Woods; paratype male from the same locality, both in the American Museum of Natural History. The specific epithet is a Latin noun in apposition, "community," and is derived from the evident communal existence of the species.

Diagnosis. Resembles *O. culiacanensis* in having the epigynal scape as wide as long, but the scape of *O. civitas* is not narrowed distally (Fig. 43). The palpus is distinct from all others of the "Mexican group," lacking both a radical apophysis and a large stipal process (Figs. 72, 73).

Description. Female from Lake Sayula, Jalisco: carapace (Fig. 28) suboval, wider than long (L/W = 1/1.2), clypeal projection evenly rounded, shoulders at base of clypeus indistinct. Carapace highest in eye region, sloping gradually behind and abruptly to clypeus, fairly heavily clothed with white plumose hairs, otherwise glabrous. Eye area wider than long, (L/W = 1/1.7), eyes in two slightly procurved rows. PLE much the largest, separated by two and one-half times their diameter, round, dark. PME irregular, opalescent, twice as long as wide, separated from each other by their greatest width and from PLE by two-thirds their greatest width. AME round, dark, nearly one-half diameter of PLE, separated from each other by twice their diameter, from PLE by one diameter. ALE irregular, opalescent, separated from AME by slightly more than one radius of AME. Epigynum as in Figures 43, 44. Remainder of structure as described for genus. Carapace with ground color of dark grayish tan, irregularly mottled dark brown, eyes ringed with black. Clypeus dark brown, margins of carapace dark brown with three lighter areas opposite legs I, II, and III. Central band of carapace grayish tan, procurved darker arc at thoracic groove, two recurved darker arcs behind, the last surrounding lighter "spectacle-like" area. Sternum, labium, coxae of legs tan ventrally. Abdomen dark brown ventrally, laterally, and in cardiac area with two light tan stripes paralleling cardiac area, large light tan macula over anal tubercle. Spinnerets and anal tubercle brown. Legs tan, all with a similar pattern of maculae and bands: coxae banded dark brown distally, femora with median band incomplete dorsoposteriorly, distal annulus complete; patellae dark brown proximally and dorsally; median annulus on tibiae complete, distal annulus complete except for narrow posterior band; median and distal annuli of metatarsi complete; tarsi shaded dark brown distally. Total length, 1.97 mm. Carapace .82 mm long, .98 mm wide. Tibiae I–IV .62, .69, .66, .75 mm long, respectively. Metatarsi I–IV .60, .66, .72, .80 mm long, respectively.

Male from Lake Sayula, Jalisco, with structure essentially as in female, except as follows: carapace wider in proportion to length (L/W = 1/1.3), eyes somewhat more dispersed, carapace more heavily clothed with procumbent white plumose hairs, abdomen smaller in relation to carapace. Calamistrum absent from leg IV. Coloration similar to female, somewhat lighter. Palpus as in Figures 72, 73. Total



Male right palpi. Figs. 48–57. 48. Oecobius *cellariarum*, lateral view. 49. O. *cellariarum*, mesal view. 50. O. *annulipes*, lateral view. 51. O. *annulipes*, mesal view. 52. O. *cancinnus*, lateral view. 53. O. *cancinnus*, mesal view. 54. O. *beatus*, lateral view. 55. O. *beatus*, mesal view. 56. O. *putus*, lateral view. 57. O. *putus*, mesal view.

length, 1.72 mm. Carapace .72 mm long, .93 mm wide. Tibiae I–IV .60, .66, .66, .75 mm long, respectively. Metatarsi I–IV .60, .68, .68, .76 mm long, respectively.

Ecological Notes. Communities of these medium-sized oecobiids weave large webs on the undersides of rocks on the shores of Lake Sayula, Jalisco. Intact whole webs were collected in July, 1964, by Willis J. Gertsch and J. Woods and deposited in the American Museum of Natural History. Each web contained between 60 and 140 individuals of approximately the same age, in most cases in the penultimate instar, with a few adults. Each individual seemed to have its own pocket or retreat in the communal web. Large egg sacs were found near the centers of two of the webs, each containing nearly 200 deutova clearly identifiable as oecobiids; in both these cases, most of the previous (?) generation were in the penultimate instar. Numerous insect parts were found tangled in the webs, mostly from ants, small beetles, and from thysanurans. The vials containing the webs also contained numerous spiders of the families Pholcidae, Filistatidae, Ganphosidae, Oonopidae, and Scytotidae. The relationship of these spiders to the oecobiids is not known; perhaps they were merely collected at the same time.

Distribution. (Map 3) Jalisco, Morelos, Guerrero, Oaxaca.

Oecobius culiacanensis new species

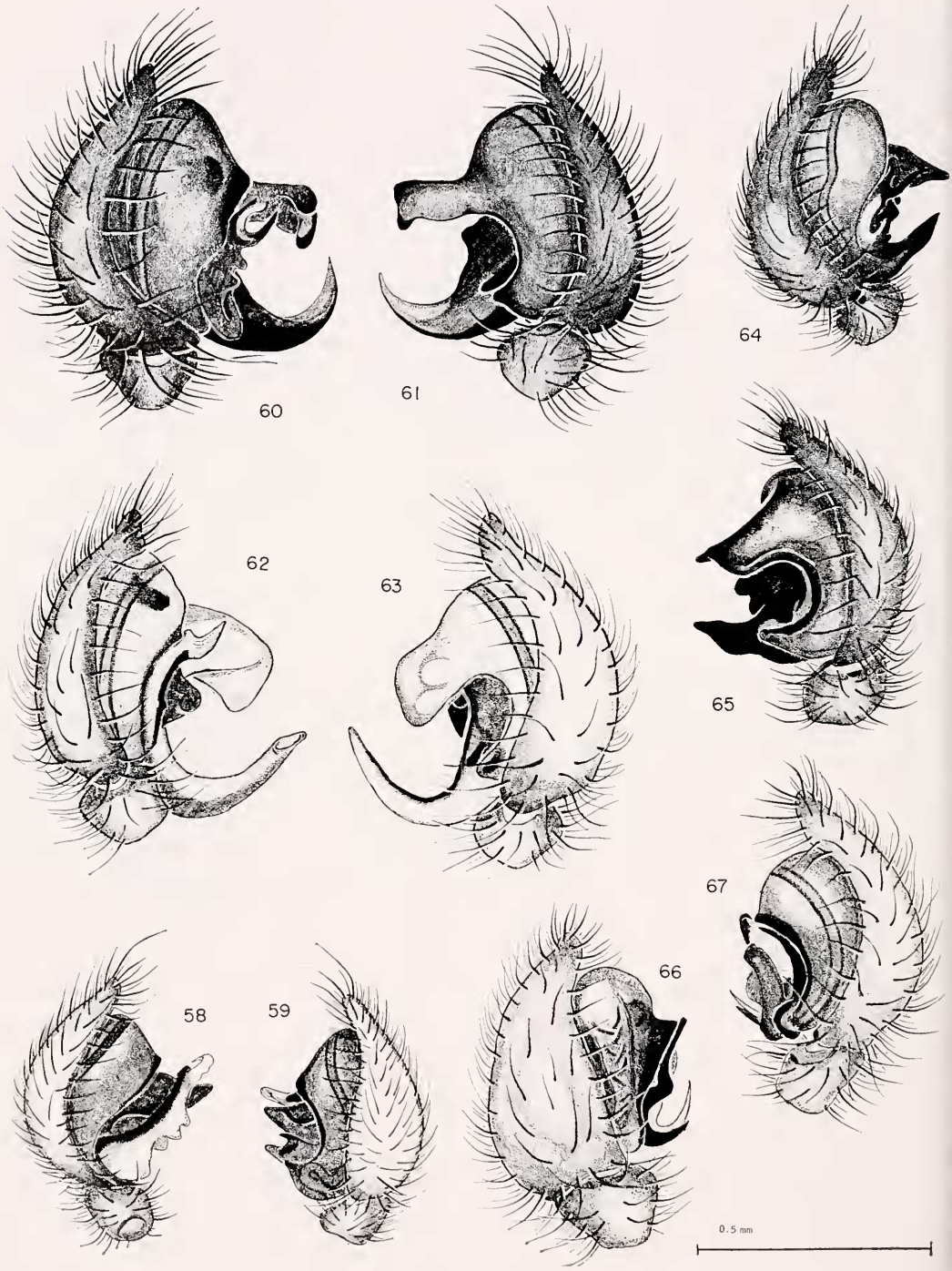
Figures 26, 45, 74, 75

Holotype. Female from six miles (9.6 kilometers) south of Culiacan, Sinaloa, 22 July 1954, collected by W. J. Gertsch; male paratype from the same locality, both in the American Museum of Natural History. The specific epithet is formed from the name of the type locality: "of Culiacan."

Diagnosis. Females may be distinguished from other members of the "Mexican group" by the epigynal scape, which is longer than wide, not folded, and bears two distal notches (Fig. 45). The stipal process of the male palpus is more spatulate than in any other species (Figs. 74, 75).

Description. Female from six miles (9.6 kilometers) south of Culiacan, Sinaloa: carapace (Fig. 26) wider than long (L/W = 1/1.12), suboval, clypeal projection slightly pointed. Eye area highest region of carapace, sloping evenly in all directions, slightly more gradually posteriorly. Eye area wider than long (L/W = .74/1), eyes in two slightly procurved rows. PLE dark, the largest, separated from each other by one and one-fourth their diameter; PME irregular, opalescent, nearly contiguous with PLE, separated from each other by their greatest width; AME dark, slightly more than one-half diameter of PLE, separated from PLE by a radius, from each other by one and one-half diameters; ALE opalescent, irregular, nearly contiguous with AME. Epigynum (Fig. 45) of the *O. civitas* type, with a broad oval scape traversed mesally by fertilization ducts, posterior margin deeply notched; fertilization ducts opening into notches. Internal genitalia typical. Remainder of structure as described for genus. Carapace evenly dusky brown-black, eyes ringed with black, submarginal markings in three series, slightly darker. Clypeus with two pale spots. Abdomen marked with dark blotches and chalky patches as described for *O. isolatus.* Sternum pale, margined heavily posteriorly with brown. Remainder of color as described for *O. civitas*, but leg bands on tibiae and metatarsi in the form of complete annuli. Total length, 2.20 mm. Carapace .66 mm long, .76 mm wide. Tibiae I–IV .55, .60, .55, .64 mm long, respectively. Metatarsi I–IV .54, .58, .55, .67 mm long, respectively.

Male from six miles (9.6 kilometers) south of Culiacan, Sinaloa, with structure essentially as in female, except as follows: carapace with two submarginal crescentic depressions running from eye area to thoracic furrow, presumably acting to provide muscle attachments for the large palpi. Palpus (Figs. 74, 75) massive, radical



Male right palpi. Figs. 58–67. 58. *Oecobius interpellatar*, lateral view. 59. *O. interpellatar*, mesal view. 60. *O. isolatus*, lateral view. 61. *O. isolatus*, mesal view. 62. *O. isolataides*, lateral view. 63. *O. isolataides*, mesal view. 64. *O. piaxtla*, lateral view. 65. *O. piaxtla*, mesal view. 66. *O. juangarcia*, lateral view. 67. *O. juangarcia*, mesal view.

apophysis blunt, stipes large, cupped, terminating in spatulate point. Conductor complex. Coloration as in female, somewhat lighter. Total length 1.86 mm. Carapace .82 mm wide, .72 mm long. Tibiae I–IV .47, .50, .50, .53 mm long, respectively. Metatarsi I–IV .45, .50, .46, .59 mm long, respectively.

Ecological Notes. All the known localities for this species are in subtropical thorn scrub.

Distribution. Southern and western Sinaloa.

Genus *Platoecobius* Chamberlin and Ivie, 1935

Platoecobius Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 270; type species by original designation and monotypy *Platoecobius floridanus* (Banks); Lehtinen, 1967, Ann. Zool. Fenn., 4: 259, 304.

Diagnosis. Separated from *Oecobius*, the only other genus in the family, by the shorter, stouter legs, the calamistrum extending the entire length of metatarsus IV, and the simpler genitalia.

Description. Small oecobiid spiders (2–3 mm total length), with the characters of the family. Carapace with sides slightly sinuate, clypeus broad, evenly rounded. Carapace flat, head region slightly elevated. Eyes on low tubercle, eye area much wider than long. AME round, dark; PLE round, dark, but lighter in color than AME; PLE and ALE light and irregular in shape. Macrosetae of eye area as follows: one immediately behind each AME and PLE; two behind eye area at posterior declivity, separated by more than the diameter of AME. Thoracic groove very indistinct, transverse. Carapace slightly depressed above pedicel. Abdomen flattened, almost elongate-pentagonal. Legs stout, spines entirely lacking. Tarsi and metatarsi without trichobothria. Hind coxae separated by sternum. Calamistrum lacking in mature males, extending in immature specimens and females along entire length of metatarsus IV. Palpi of mature males with tegulum lacking, radix spiral, making more than one turn, conductor small, membranous. Females without elaborate epigynal modification, two pair of spermathecae, one heavily sclerotized, the other saclike.

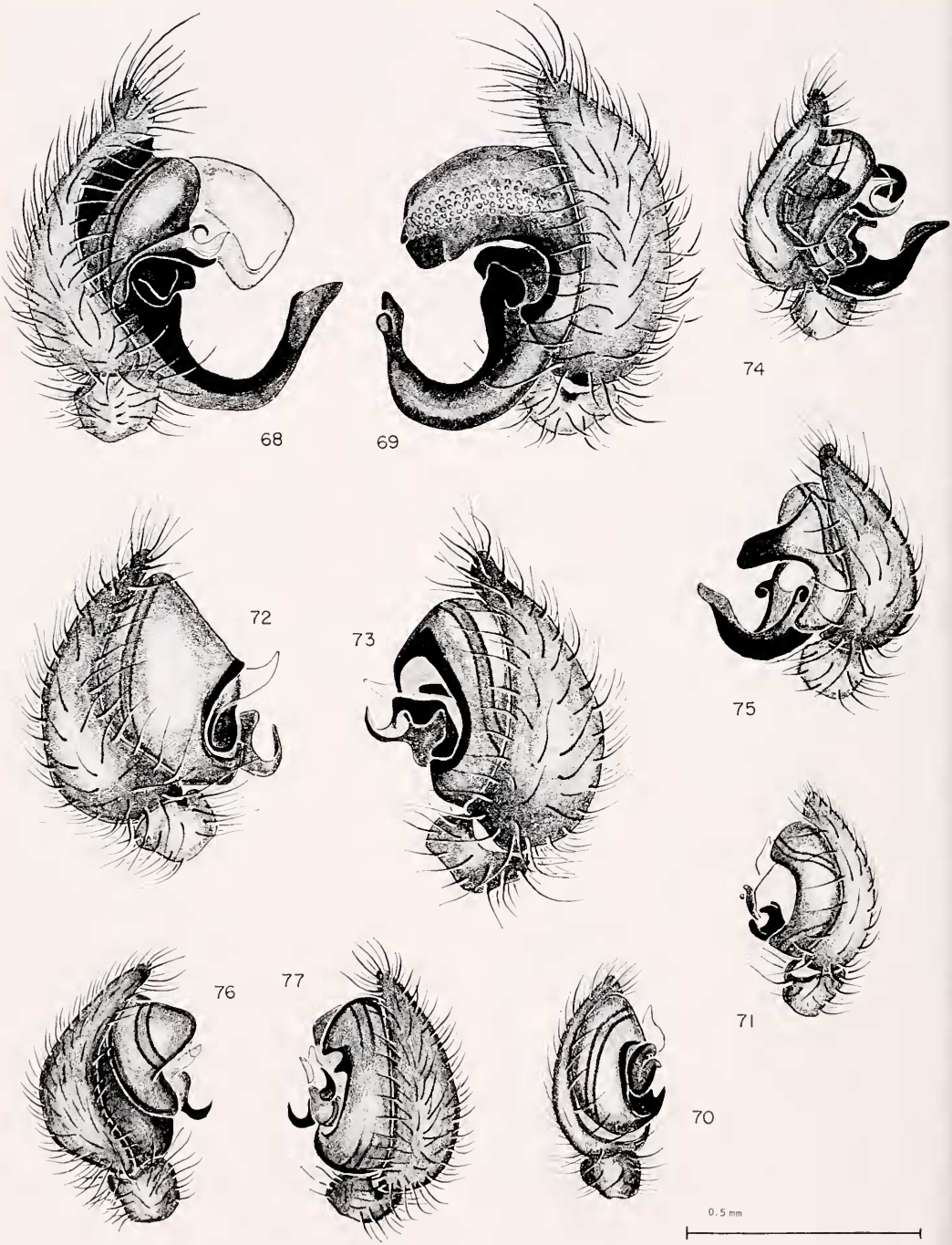
Platoecobius floridanus (Banks)

Figures 27, 46, 47, 76, 77; Map 2

Thalamia floridanus Banks, 1893, Trans. Amer. Entomol. Soc., 23: 58; holotype ♀ from Lake Worth, Florida, in American Museum of Natural History, examined.

Platoecobius floridanus, Chamberlin and Ivie, 1935, Ann. Entomol. Soc. Amer., 28: 270, pl. 4, figs. 22–32, ♀. Roewer, 1954, Katalog der Araneae, 2: 1290; Bonnet, 1958, Bibliographia Araneorum, 2: 3699.

Description. Female from Highlands Hammock State Park, Florida: carapace (Fig. 27) suboval, slightly wider than long (L/W = 1/1.08), widest just posterior to eyes, edge slightly undulate, clypeal projection broad, evenly rounded. Carapace highest in eye area, elevation prolonged somewhat behind eyes, sloping evenly in all directions. Thoracic groove very indistinct. Eye area wider than long (L/W = 1/2.25), eyes in two rows, the first slightly procurved, the second straight. AME the largest, separated by one diameter, dark. ALE opalescent, subequal in size to AME, slightly irregular, nearly contiguous with AME, their posterior edges lying on a line through centers of AME. PLE light, but not opalescent, separated from each other by nearly six times their diameter, nearly contiguous with AME. PME nearly one-half the diameter of PLE, slightly irregular, opalescent, nearly contiguous with PLE. The general impression is one of two well-separated tetrads of eyes. Legs proportionally stouter than in any *Oecobius* species. Epigynum as in Figures 46, 47. Remainder of structure as described for the genus. Ground color medium tan. Carapace with darker marginal bands, eyes surrounded by black, clypeal projection with two parallel light stripes set off by darker lines on each side.



Male right palpi. Figs. 68–77. 68. *Oecobius rivula*, lateral view. 69. *O. rivula*, mesal view. 70. *O. bracae*, lateral view. 71. *O. bracae*, mesal view. 72. *O. civitas*, lateral view. 73. *O. civitas*, mesal view. 74. *O. culiacanensis*, lateral view. 75. *O. culiacanensis*, mesal view. 76. *Platoecobius floridanus*, lateral view. 77. *Platoecobius floridanus*, mesal view.

Thoracic groove slightly darker. Abdomen pale dorsally, dark brown on sides. Venter nearly white, spinnerets and anal tubercle dark brown dorsally. Sternum, coxae of legs, labium nearly white. Legs irregularly blotched darker, blotching very indistinct on most specimens. Total length, 2.40 mm. Carapace .82 mm long, .88 mm wide. Tibiae I–IV .52, .52, .48, .54 mm long, respectively. Metatarsi I–IV .38, .44, .38, .49 mm long, respectively.

Male from Highlands Hammock, Florida, with structure essentially as in female, except as follows: carapace somewhat wider in proportion to length (L/W = 1/1.1), eye area not so wide in proportion to its length (L/W = 1/1.9). Proportions of eyes as in female. Calamistrum absent, cribellum suppressed. Body much more heavily clothed with hairs. Palpus as in Figures 76, 77. Coloration similar to female, somewhat lighter. Total length, 2.02 mm. Carapace .75 mm long, .82 mm wide. Tibiae I–IV .49, .49, .45, .47 mm long, respectively. Metatarsi I–IV .36, .38, .38, .44 mm long, respectively.

Ecological Notes. Chamberlin and Ivie (1935) record this species as being found beneath the bark of trees, and note that no prey-catching web has been observed. They did not remark on retreats that may have been built by the spider. It is possible that the enlarged, forward-directed median eyes are an adaptation to a vagrant, hunting existence. Mature representatives of both sexes have been taken in December, February, and August.

Distribution. (Map 2) Central Florida, inland Georgia, and South Carolina.

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